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ABSTRACT

The thirty papers in this Annual Proceedings of the Western College Reading Association (WCRA) were originally delivered at the Sixth Annual Conference in Albuquerque, New Mexico. Topics covered include self-programed control, increasing study-concentration behavior, individualizing a college reading program, human options for human beings, technological alternatives in learning, the reading program at Metropolitan State College, data collection, the use of behavioral contracts, outreach programing for college reading centers, in-service training for instructors, vocabulary building for vocational education students, diagnosis and treatment of text study problems, body language, self-supporting individualized adult reading programs, reading and study skills that predict success in freshman biology, development of a four-level college reading program, proxemics and the college reading specialist, reading resource centers, peer tutoring, programs for the blind and visually handicapped, SQ3R, reading technology, vocational reading, and cognitive centers to develop effective study skills. (WR)

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PROCEEDINGS OF THE SIXTH ANNUAL CONFERENCE OF THE

WESTERN COLLEGE READING ASSOCIATION

VOLUME VI: TECHNOLOGICAL ALTERNATIVES IN LEARNING

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PREFACE

The thirty papers in this Annual *Proceedings* of the Western College Reading Association were delivered originally to WCRA participants at the Sixth Annual Conference in Albuquerque, New Mexico.

Inclusion of papers in this volume was determined by majority decision of a six-person editorial team, whose names and affiliations are listed on the first page of the front matter. The editor and the editorial advisory committee, then, accept responsibility for the presentation but not the content of papers, none of which has been published previously.

As this editorial team attempted to organize these papers so that they would fit legitimately into and under categories, it found that conventional categories such as *Research, Program Descriptions,* and *Program Prescriptions* were not useful nor, truly, even defensible. In fact, only a few papers in this volume can be clearly and fairly accommodated to any taxonomy that we can copy or concoct. And perhaps such is to be expected if the interesting and colorful pluralism of our membership is reflected in the style and content of the papers they present. Therefore, readers will notice that the Table of Contents of this volume reflects an entirely non-judgmental and altogether democratic arrangement–alphabetical by author.

GK
6/26/73

SEVENTH ANNUAL CONFERENCE:
OAKLAND, April 4-6, 1974

EIGHTH ANNUAL CONFERENCE:
ANAHEIM, March 20-22, 1975

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PROCEEDINGS OF THE SIXTH ANNUAL CONFERENCE OF THE

WESTERN COLLEGE READING ASSOCIATION

Theme: Technological Alternatives in Learning
April 12-14, 1973

Host Institution: Eastern New Mexico State University, Portales, New Mexico

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IN MEMORIUM
NED D. MARKSHEFFEL

Past President, Western College Reading Association

There were six determiners which led him from the Nevada ranch where he was born to the Director of Reading and Professor of Education at Oregon State University. These six determiners were (1) Pop, (2) the depression, (3) an inner feeling of "wanting to teach," (4) World War II, (5) his wife, Kay, and (6) Dr. Betts' reading course. Between these two points in his life, a wide variety of occupations took place other than teaching. He panned for gold, worked in restaurants, hauled and stacked hay, and herded sheep.

A job as night manager of Safeway at $20 per week and some courses at San Francisco State College, because "he needed a little education," earned him an elementary teaching credential. Dust-bowl migrants were his first teaching job; then he moved to Bakersfield to teach "yard birds," as he called them. During one summer, he attended the University of Southern California and met Kay.

During World War II in his spare time he taught illiterates in the army to read, and following the war he taught German children to read, while still in Germany. He returned home and married Kay in Vancouver, B.C.

They returned to Santa Cruz after their marriage, and he started and maintained a successful landscaping business. But the inner desire to want to teach returned and prompted by his wife and that desire to teach, he attended Temple University where he earned his master's degree under Dr. Emmett Betts.

Upon completion of his degree, he returned to Santa Cruz High School and his first love, teaching. Yet, he wasn't satisfied just teaching "yard birds" as he always called them; he wanted to do more. He wanted to help train teachers to do a better job of teaching reading; so, he went to Stanford for a doctorate. "I thought I could help more students by teaching teachers," he once said.

His first and last college position was at Oregon State University. He established a reading program, a reading clinic for little "guys" in the elementary schools, and a degree program in reading education which is one of the finest in the nation.

A textbook, ***Better Reading in the Secondary Schools***, a high school spelling book, and a literature series were produced in a few short years.

A number of positions as a visiting professor, participating in numerous IRA conferences speeches across the country and a great deal of time and effort convincing the State Board of Education and the Legislature to pass a law requiring reading education courses for every teacher in the State of Oregon from grades 1–12 were just a few items that kept him so busy. Oregon became the first state by law to require a secondary reading methods course for every secondary teacher.

Western College Reading Association became his labor of love. He helped to establish an organization for the junior/community college teacher of reading and to improve reading services at the post-secondary level. His motive was to help teachers to better teach students.

He always was striving to do what his Pop had advised him to do—get an education. Teaching was his life. His drive and his goal was to get an education.

He summed his attitude toward his teaching by stating, "When a guy can read, he can learn anything. It's all there in the books. If he can't read, he can't write, certainly not above his reading level. I think it's a tragedy when these little guys can't read. If they can, they can check us out."

Ned D. Marksheffel was proud to be a president of WCRA and Coordinator of State Directors. This organization was special to him and he worked hard for its growth and development. Stubborn, yes, but underneath he was warm and soft to a fault.

On September 4, 1972 he died suddenly and unexpectedly from a massive heart attack doing what he loved to do best—getting ready for another year of teaching.

We have lost a great educator and a friend.

Prepared by Kenneth M. Ahrendt

SELF-PROGRAMMED CONTROL: A NEW APPROACH TO LEARNING

Alfred A. Barrios
East Los Angeles College

At the American Association for Higher Education Conference held in March, 1972, the question was asked: "Are learning skills centers effective educational service stations?" One answer given in a paper (1) presented by the author was that such centers were *not* effective enough, primarily because they were not "*a*ffective" enough.

Until now learning skills centers have focused primarily on the cognitive aspects of learning and not sufficiently on the affective aspects. Basic learning skills are, of course, very important in learning. But equally, if not more important, is the student's mental attitude and state of mind.

There are two basic affective factors that must be dealt with if we are to really improve a student's learning ability. First, there is the student's usually negative attitude toward school. He most often finds schoolwork a chore, and, what's worse, he usually doesn't think much of his learning capabilities. Thus, his motivation is usually much lower than it might be. Secondly, there is the fact that most students are also plagued with any number of personal or emotional problems. Love, sex, drugs, parental difficulties, inferiority complexes, etc., are all capable of producing very real interference. If we are truly interested in improving our student's learning abilities we have to take into account these two, most crucial, factors.

Most educators are very aware of this need. The most likely reason that something hasn't been done about it heretofore is that we just haven't had any really effective means of dealing with the problem. However, this no longer need be the case. A unique program has been developed which has already proven to be highly effective in dealing with these factors. The Program is called Self-Programmed Control (SPC).

THE BASIC GOALS AND COMPONENTS OF THE SPC PROGRAM

The two basic goals of the SPC program for education are to help instill a more positive attitude toward learning and to provide a student with an effective means for handling personal and emotional problems.

The program is made up of three basic interacting components: The Self-Programmed Control Techniques; Psycho-cybernetics; and the Expansion of Mental Capacity techniques.

The SPC Techniques

Perhaps the most important of the components is the first—the SPC techniques, for it serves the purpose of opening the door, of giving the student some real hope and belief in the possibility of change. We all know that changing life-long behavior patterns is not the easiest of things to accomplish. Much of man's behavior is so deeply ingrained that it has become automatic; that is, his behavior is not that subject to voluntary control. Any remedial or rehabilitative program has to take this into account. The SPC techniques are aimed at eliminating or breaking through this involuntary barrier. They are a highly effective systematic means of giving a person greater control over, or freedom from, his "involuntary" side (that is, his habits, attitudes, emotions, etc.).

There is no end to the possibilities of SPC. Just about any aspect of his behavior can now more easily be controlled by the student. For instance, he can gain greater control over his ability to react calmly in previously tense situations; e.g., studying, taking exams, giving a talk, socializing, handling everyday pressures, etc. He can also use it to more easily instill new study habits, be able to concentrate better, become better organized, stop procrastinating, break any bad habits, control his temper, express himself more assertively, control his moods, etc., etc.

The approach is based on the premise that words and thoughts have the ability to produce reflexive or automatic responses. We know that words can act as conditioned stimuli. Pavlov long ago recognized this fact: "Obviously, for man speech provides conditioned stimuli which are just as real as any other stimuli . . . Speech, on account of the whole preceding life of an adult, is connected up with all the internal and external stimuli which can reach the cortex, signaling all of them and replacing all of them, and, therefore, it can call forth all those reactions of the organism which are normally determined by the actual stimuli themselves." (5)

An obvious example of this is the effect the word "steak" can have. If someone is hungry and he starts talking or thinking about a thick, juicy, delicious steak he will soon be having, his mouth should immediately and automatically start watering. Here we have a physiological response produced by a "mere" word. Similarly, if one starts talking or thinking about some fearful situation he will soon be facing, he might find his heart beginning to race, his palms becoming sweaty, etc. Again, physiological responses produced by "mere" words, subvocal or otherwise.

This, then, is how one gains greater control over his involuntary side—through inner speech or thought. By focusing on the appropriate positive thought sufficiently, one can then produce any positive reaction he wishes.

Of course, we know that ordinarily words or suggestions don't always produce the appropriate response. This is why it so often happens that good advice "goes in one ear and out the other." But the capability of words and images to produce responses is always there. All that need be done is to bring it out. That, then, is what SPC does. It is a step-wise, systematic procedure for producing a gradually stronger and more effective response to positive words and thoughts. It is a procedure which concentrates the mind, thus magnifying one's responsiveness.

One of the first of the SPC techniques introduced to the student is the "pendulum." It is an especially effective technique because it gives the student immediate concrete proof of the basic premise that focusing on a particular thought will automatically produce the response the thought is associated with. To illustrate this point the reader might like to try the first stage of this technique.

First, one makes a pendulum approximately 9 inches long. This can be done quite simply with a piece of thread and any weighted object such as a ring (or paper clip). Now, sitting up, holding the pendulum between your forefinger and thumb, and resting your elbow on the arm of the chair, keep your eye on the ring (it should be fairly motionless to start). Next, begin programming in the thought that the pendulum will start to swing from left to right. That is, expect it to start swinging in this direction. Soon, to your amazement, it will actually automatically begin moving in this direction. The reason it is moving is that the thought or expectation of the movement produces an automatic movement of your hand which is then amplified by the pendulum. Tell yourself that it is going to swing even more and watch it as it automatically responds to your thought, to your own command. And as you see it beginning to move you begin to realize that you *can* respond, you can gain control over your automatic side and that by focusing on the right thought you will get the right action. Also, you begin to realize the more concentrated your mind becomes, the stronger a response you will get. You can next change the direction of movement to a circular one by programming in that it will begin to move in a circular direction. Almost immediately you should find the pendulum begin to move in this new direction, again automatically.

The remainder of the pendulum technique involves going through a series of such steps. The second step is aimed at producing the automatic opening and then closing of the fingers; the third step focuses on producing an automatic movement of the arm toward the body and then away from it, and so forth.

Each of the SPC procedures involve going through a series of such steps, each step increasing the probability of a positive response to the next one. Thus, after going through one of these procedures a person finds himself considerably more responsive to the positive thoughts or goals he wishes to program in. And after using the techniques for a while, he soon finds that he can program in his positive thoughts effectively without having to first go through the SPC procedure. Thus, these techniques act as a catalyst or bridge showing a person that he can, indeed, accomplish just about anything he sets his mind on.

The greater control afforded by these procedures increases the student's self-confidence (expands his self-image) and makes the possibility of positive change really believable. This, in turn, opens his mind to the other two components of the program: Psycho-Cybernetics and Expansion of Mental Capacity.

Psycho-Cybernetics

To give a person a powerful tool for change, but no sense of direction for using it would be foolish. The Psycho-Cybernetics component is aimed at improving one's ability to deal with personal and emotional problems as well as showing him how to get the most out of life. The book *Psycho-Cybernetics* (4) aims at expanding one's image of himself to the point where he can really begin to believe he is capable of so much more. It teaches a person to be more positive and not be afraid to ask or try for something for fear of failure or rejection. It helps develop in a person a secure, serene state of mind in which he knows that no matter what the obstacle or problem he will somehow be able to overcome it. It further adds to his serenity and peace of mind by showing him how to best react to many of life's frustrations and by providing answers to many questions about life and solutions to many personal problems plaguing the average person. Thanks to the SPC techniques, this valuable philosophy is made more meaningful. Some people may have read a book like this before and thought that it sounded good, but they couldn't really believe that it would work for them.

What the SPC techniques do is show the individual that he really can change. He truly comes to believe in his ability to control his own destiny. This belief then opens the individual to the guidance of positive philosophies such as those espoused by *Psycho-Cybernetics.*

Expansion of Mental Capacity

The third component, Expansion of Mental Capacity, allows the student to experience immediate reinforcement of the new positive attitudes toward school he is beginning to program in. It is pointed out to him that the "A" student is often so, not because he was born with an oversized brain, but because through trial and error or special training he has acquired many of the shortcuts or more efficient ways of learning, techniques which the student can now learn directly. The point that such methods do make learning more efficient and easier is quickly impressed upon the student the very first session, when he is shown how, by using certain memorization techniques (grouping and association), he can memorize a twenty-three digit number (e.g., 19452001555975414952345) in a matter of seconds. The average student, who all his life has believed that only "geniuses" could perform such feats, is extremely impressed with his new-found mental powers. Thus, his appetite for such shortcut techniques is whetted and he quickly takes to other such procedures offered (e.g., SQ3R for reading and studying improvement, how to take tests, improvement of problem-solving ability, etc.). The immediate positive effects resulting from the use of such techniques then reinforce the new positive attitudes being formed. He now finds learning easier and more rewarding and realizes he *is* capable of so much more than he thought possible. Also, as a result of his change in attitude, he is no longer afraid to admit he needs help and he becomes more highly motivated to make up any deficiencies in his basic learning skills (e.g., vocabulary, spelling, grammar, basic math, etc.).

THE SPC KIT

To facilitate learning the techniques, the student makes use of the SPC kit which includes a recording of the techniques and the SPC Manual (2). The recording facilitates the home practice of the techniques (which is so important for the program to be really effective) as well as future reinforcement sessions. Also included in the kit is the Tension-Temperature Colorimeter, a bio-feedback device especially useful for indicating amount of tension-reduction produced by the techniques. In addition to a copy of *Psycho-Cybernetics*, the kit also contains a copy of *Studying Effectively* (8), the book used in the Expansion of Mental Capacity component. Finally, there is also the Spiral machine which allows the student to practice at home with the Spiral technique. The SPC kit actually has all the ingredients for allowing one to learn the program on his own.

RESULTS ACHIEVED THUS FAR WITH SPC

In the short period of a year-and-a-half the program has spread to a number of schools including UCLA; Golden West College; Orange Coast College; Los Angeles City College; El Paso Community College, Texas; Lambton College, Canada, and the University of Upsala, Sweden.

The data to be reported now was derived from its application at East Los Angeles College where the first complete application of the program was begun in 1969, thanks to a government sponsored Title III project to help disadvantaged Mexican-American students. As a result of its initial success with these students it was soon opened to all students as part of a regular 3-unit Developmental Study Skills course (Psychology 22). All measures appear to indicate a clear-cut positive effect.

In the area of attitude toward school, the Brown-Holtzman scores (3) for the Spring '71 semester SPC class rose from the 17th to the 50th percentile. In the area of ability to cope with personal problems the average Willoughby score (6) dropped from the 72nd to the 34th percentile. Both these improvements are considered rather remarkable considering the relatively short length of the course. Also of interest are the results of an anonymous questionnaire given to a total of 236 students that had taken the course. These results indicated that in those students indicating excesses in the following areas these percentages cut down: food 72% (65 of 90); cigarettes 70% (37 of 53); alcohol 91% (48 of 53); TV 82% (84 of 102); marijuana 69% (22 of 32); pills ("uppers" and "downers") 83% (10 of 12); LSD 100% (7 of 7); heroin 100% (1 or 1); and gambling 75% (9 of 12). The interesting thing about this curtailment of excesses is that it occurred primarily as a side benefit of the program. (No concentrated attack was made on the excesses.) It occurred mainly because of three major changes resulting from the program; the general increase in the ability to relax; the greater enjoyment of other areas of life; and the greater amount of self-control. Most excesses can usually be traced to a deficit in one or more of these areas.

Actual improvement in grades and number of units completed were found to correlate with the affective changes. Grade points of the Spring '71 mid-semester class were compared over two semester (the semester *prior to* and the semester *following* the class) with those of a total of five other Spring '71 mid-semester Developmental Study Skills classes (taught by five different instructors not using SPC). The average grade points (GPA X number of units) increased for the SPC class (+3.80) whereas it dropped (-5.45) for the comparison classes. (The overall difference of 9.25 was statistically significant at the .02 level.) Also, a considerably greater percentage of students applied to a 4-year college from the SPC group than from the comparison group. The total percentage of SPC students either applying to another school or getting their AA degree was 84% versus 44.4% for the comparison group (see Tables I-III).

Corroborating the above results is the data from the UCLA study involving 372 students from the '72 Fall quarter. Although it is too early to report on the program's effects on grades, we do have the results of

TABLE I

Number of Students Attending Mid-Semester Spring '71 Psychology 22 Classes

	SPC Class	Five Comparison Classes
Total Number	105	89
Total Number Withdrawals from Class	22	27
Total Number of Incompletes	2	5
Percentage of Withdrawals and Incompletes	22.9	36.0
Average Number Remaining Per Class	81	11.4

TABLE II

Grade Points for Semester Prior and Semester Following the Spring '71 Class

	SPC Class	Five Comparison Classes
Total Number Present All Three Semesters	51	32
Average Grade Points Fall '70	19.33*	20.45*
Average Grade Points Fall '71	23.13	15.00
Average Increase in Grade Points	+3.80**	–5.45**

*The difference (–1.12) is non-significant ($F < 1$)
**The total difference, +9.25, is significant at .02 level ($F = 6.50$)

TABLE III

Students Completing Spring '71 Mid-Semester Psychology 22 But Not Attending Fall '71

	SPC Class	Five Comparison Classes
Total Number Not Present Fall '71	25	9
Number That Applied To 4-Year College	15	3
Number That Applied To Another 2-Year College	4	0
Number Received AA Degree, But Did Not Go on to 4-Year College	2	1
Total Percentage Applying To Other Schools or Receiving AA Degree	84%	44.4%

two pre-post tests. The average Willoughby scores went down from the *63rd* to the *25th* percentile and the average Study Habits Inventory (8) scores went up from *11.92* to *73.42* where *15* was noted as the median score (50th percentile) for a large group of college freshmen (7). This compared quite favorably with the ELAC data, especially considering that the students were only seen for one-fourth the time of the ELAC mid-semester class.

INCORPORATING THE SPC PROGRAM INTO A SCHOOL'S CURRICULUM

There are a number of means which can be used to incorporate the SPC program into a school's curriculum. This includes the SPC kit, the course outline and the instructor's workshop.

The aim of the 12-hour instructor's workshop (usually spread over four days) is not only to instruct in the ways of teaching the SPC program, but also to allow instructors to benefit from the program themselves. No one is perfect and we can all certainly use something that gives us greater control over our lives. This in turn will make us better teachers, more positive in our attitudes towards a student's abilities and much less burdened by personal inadequacies. In addition, one becomes a more effective teacher of SPC if he himself has experienced its benefits.

The instructor's workshop can benefit the student in three ways. First, as a more self-actualized person the instructor will be better able to get through to his students. Second, he can incorporate some of the techniques into his regular class, or, third, a class similar to the one reported on in this paper can be taught. Two successful workshops have already been held at Golden West College with instructors from all over the Southern California area participating.

THE POTENTIAL OF SPC

As can be seen, the possibilities for SPC in the educational system are considerable (not only at the college level, but also the secondary and elementary school levels as well). It seems to answer several current basic needs in education. This includes the need for *Accountability* on the part of instructors, something that has been getting a considerable amount of attention recently; the need for *Relevance* of educational courses; more effective programs for *minority students;* more effective *drug abuse* programs; a greater stress on *the affective component of learning;* as well as programs for *helping instructors* become more positive in their attitudes towards students as well as themselves.

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INCREASING STUDY-CONCENTRATION BEHAVIOR: THE APPLICATION OF BEHAVIOR MODIFICATION TECHNIQUES

Joel Birdwell and William Gabbert
The University of Calgary

Poor concentration is one of the primary difficulties which interferes with students' efforts to study. (4; 5; 16) As well, it is assumed that one of the most pronounced instructional problems instructors have is difficulty in teaching students how to concentrate. Of course, the student side of the problem is better documented, but the difficulty does tax instructors' abilities when helping students who have concentration of attention problems.

One interest of the Reading and Study Skills Program at The University of Calgary over the past three years has been behavioral analysis and modification of study-concentration behaviors. In our diagnostic research we have attempted to track concentration of attention behavior to enable us to be more effective in modifying individual students' study behaviors. Different investigations of reading and study skills groups of students at The University of Calgary have indicated that 75 percent to 85 percent of the students surveyed ranked difficulty of study-concentration as the most significant problem interfering with their most successful study or reading behaviors. The N of 659 were surveyed over a period of 2½ years at alternate times during the university year.

If one is to modify study-concentration behaviors one has to take a direct approach to the problem. The authors suggest the Hierarchical Model of Study-Concentration Behaviors.

HIERARCHICAL STUDY-CONCENTRATION MODEL

Study-concentration behavior is treated by some instructors as if it were a unitary skill, or in many cases as if it were some type of mental faculty. Furthermore, if it is treated as a skill it is usually treated as a lateral or sequential skill (1). Recent tracking of the behavior, using behavioral analysis techniques with students in our programs, would indicate that study-concentration behavior is made up of a number of hierarchically related behaviors, not as popularly believed as a matter of "will power."

Fox (6), Beneke and Harris (3), Jackson and Van Zoost (8), and Barrow (2) among others, have conducted studies which showed that students can increase study-concentration behaviors when behavior modification techniques were used to help the students develop concentration skills. Each of the studies had all the important skill steps, but the hierarchical relationship of the various behaviors involved were not explicated.

We propose a hierarchical model for study-concentration behaviors which applies across reading and studying activities.

The behavioral model of study concentrations behavior begins with the lowest level, educational orientation (see Figure 1). Unless a student is oriented towards educational goals of some kind he/she is not likely to be in a position where study-concentration behaviors become precurrent behaviors (15). Educational orientation, secondary educational orientation, and study orientation can be measured with reference to approach behaviors, or attitudinal responses, to the education environment. If a student is not operating at one of these three initial levels of the hierarchy, then we believe you have a student who will end up as a failing student, dropout, or more than likely a dropout because of failing grades.

The next level of the model is the time planning or management step. If a student does not have some plan for managing his time, he may never get around to studying, or if he does it is usually impulse studying, getting in the mood to study, or respondent studying which generally means there is a test to be written the next day. Successful students usually employ some type of time planning and management skills. Unsuccessful students very seldom use any type of time planning and management system (12).

Another level of the hierarchy is selection of the study environment. The authors are in definite disagreement with Voeks (16) who suggests that external distractions do not seem to be very important to study-concentration behaviors. The research we have conducted shows that if a student is having difficulty concentrating the distraction can easily be an external distraction. What seems to be important is developing study concentration behaviors in a relatively distraction free environment, then generalizing the study-concentration behavior to other study environments.

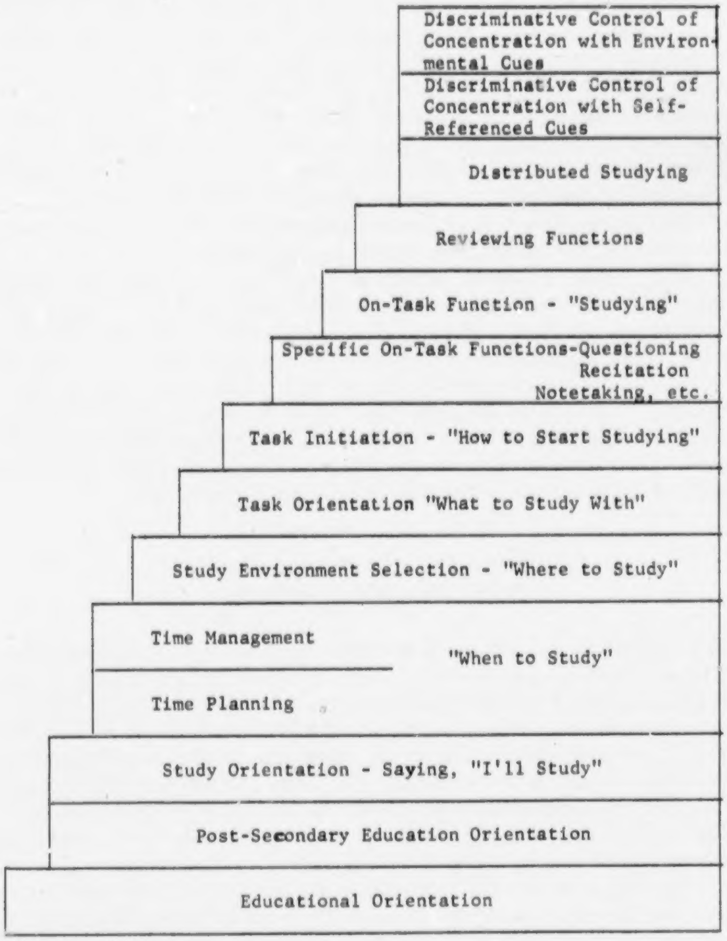
Task orientation refers to whether the student is aware of certain stimuli which help direct attention to concentrating on studying by having "tools of the trade" available.

Closely related to task orientation is the task initiation level. The consequences of task initiation have to do with initiating various skills associated with studying. If the student does not know how to "get into the subject" then he is likely to have difficulty in concentrating. Internal distractions are the major problems to be dealt with at this level.

After one has learned how to initiate study-concentration behaviors he must maintain attention to the task which involves specific on-task functions. These include surveying, questioning, note taking, underlining, recitation, etc.

The next level is the on-task function phase. This level of the hierarchy is an integrative level which functions to interrelate the specific functions. This is literally the "studying" level where the student uses the various skills that have been previously learned. This level can be identified with

Figure 1
Hierarchical Model of Study-Concentration Behavior


Discriminative Control of Concentration with Environmental Cues
Discriminative Control of Concentration with Self-Referenced Cues
Distributed Studying
Reviewing Functions
On-Task Function - "Studying"
Specific On-Task Functions-Questioning
Recitation
Notetaking, etc.
Task Initiation - "How to Start Studying"
Task Orientation "What to Study With"
Study Environment Selection - "Where to Study"
Time Management
"When to Study"
Time Planning
Study Orientation - Saying, "I'll Study"
Post-Secondary Education Orientation
Educational Orientation

behavioral indicators which refer to work-study skills. The students' attention is focused on the study task, or tasks, which is maintained by behaviors that are controlled by the content of materials and the context of the study setting.

The reviewing functions level is primarily an integrative level which is concerned with interrelating past and present operant and coverant skills (7). It is a consolidation phase that functions as a part of the learning process which could be called memory. In order to function on this level one must develop skills related to synthesizing, evaluating and expressing the synthesis and evaluation in some graphic or auditory form.

The final three levels of the model are developed to help the student maintain a study orientation over a longer period of time. The first of the final 3 levels have to do with distributing study periods to maintain the learning process associated with course content and skills. The last two levels are concerned with helping the student develop discriminative stimuli, i.e., behavior directing cue stimuli, related to internal thoughts and the external study setting that are conducive to maintaining study-concentration behaviors. Generally, they are mastering skills which "prompt" concentration of attention during a specific study period.

The research we have conducted suggests that the various skill levels are hierarchically related. This implies certain things.

First, certain behaviors must be prepotent before the next step in the hierarchy is initiated and completed. Second, vaulting or leap-frogging skill steps increases difficulty in concentrating. Our research also indicates that what is now suggested by various books about study skills as methods to increase study concentration behavior may make concentrating more difficult for individual students. Third, to teach a student how to concentrate one must find at which skill level he is operating. Finally a student can reach a level in the hierarchy where study-concentration behavior is controlled and maintained by cues in the study environment.

MODIFYING STUDY-CONCENTRATION PERFORMANCE: A METHOD

The method we use in helping a student modify his study-concentration behaviors involves six procedural steps. The focus of the steps is on the individual student and the measurable and potentially measurable behaviors (overt, covert-cognitive, and physiological responses) of the student (9). The information obtained allows the student to develop specific goals to which he/she can make a commitment. From this they quickly get the idea that study-concentration behaviors do not occur by chance. A satisfied student gets that way because of what he/she says and does. Any incongruency between saying and doing leads to dissatisfaction.

The first step in modifying study-concentration behavior is the location and identification of the behaviors to be changed (18). The student's hierarchical skill level is determined. Presently, we have no specific instruments to determine skill level. We have used behavioral rating scales, checklists, available tests, and we have asked students to list what problems they feel they have and then rank order them to determine the skill level of students. Often we have students monitor their behavior with a study log, time evaluation chart, or task evaluation chart. In some instances we have used a combination of these information gathering techniques.

Second, we help the student set up behavioral objectives–target behaviors. Usually, this involves some type of time or task goal, and with some students a rate goal–task/time.

Third, we teach "what to do" strategies to reach objectives. This may include telling a student how to read particular textbooks, teaching study techniques such as SQ3R, thought-stopping techniques, contingency contracting for dating time, etc.

Fourth, we have the student set up a "doing it" action schedule to help reach objectives. Essentially we have them answer the question "What is my time plan for changing my concentration behavior?"

Fifth, when the time plan is finished the student evaluates his behaviors. Has the target been reached? If the target has been reached the student terminates or sets other behavioral goals to work toward.

Finally, if the evaluation is negative then the problem is reconsidered. What happened? The question is: Should new goals be set and as Ogden Lindsley, of the University of Kansas, has said, "Try, try again?"

CASE STUDIES

Case #1

Case #1 was an 18 year old male student enrolled in a social sciences program. He enrolled in The University of Calgary's Reading and Study Skills Program "to learn to read and study better." When the students were asked if they wanted help in developing study and concentration behaviors he was one of the first students to respond to the query.

Prior to any modification procedures, a behavioral analysis, part of which consisted of a time analysis chart, revealed that the subject's difficulty was lack of attention or non-concentration being socially reinforced by visiting with his friends. The time analysis chart revealed that he spent considerable amounts of time in one of the Students' Union Building lounges talking to his friends. Further, the student was constantly affected by emotional internally distracting thoughts related to activities listed as free time activities. The problem was primarily one of task initiation and on-task maintenance.

The modification procedures used with this student were a modified Premack contract (17) and "Thought-Flooding." The target behavior for the contract was: Increase concentration behaviors while studying textbooks. The contingency aspect of the contract was making amount of lounge time with friends contingent upon amount of study-concentration behavior. The contract procedure was explained to the student and he was able to understand the importance and possible effectiveness of the contingency relationship.

"Thought-Flooding" was the procedure elected to eliminate the internal, emotionally distracting thoughts the student was having. The "thought-flooding" procedure was as follows:

1. While studying his textbook, if he had a distracting thought he was to immediately mark the page and close the book.
2. Next he was to turn away from the book.
3. Finally, he was to think as "hard" as he could about the distracting thought.

Before the student commenced the modification procedures he was studying on the average, approximately 31 minutes per day. This baseline measure was compared with five subsequent weeks. The comparision showed the student was able to concentrate on studying progressively more over the five week modification period. After the third week the student ceased complaining about the distracting thoughts and began talking about how much better he was able to concentrate. During the sixth week his time charts showed he was averaging five hours of On-Task study-concentration time per day.

Figure 2 shows a graph of this student's baseline measures that is followed with data pertaining to increased study-concentration behavior monitored over a subsequent five week modification period. The data of the graph indicates that after the second week of intervention the student was maintaining concentration periods of about 75 minutes duration.

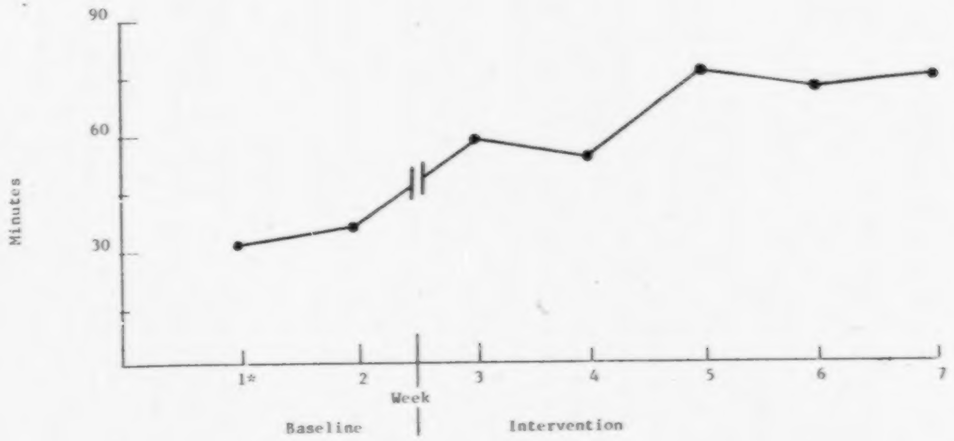
A comparison of this student's final grades with previous ones indicated that in three courses he had increased his grades by at least one letter grade. In two courses he had increased his letter grades by two grade letters. Where he had been making very low *C* marks he was now making B's and A's.

Case #2

Case #2 was a 24 year old female student enrolled in a fine arts program. She enrolled in The University of Calgary's Reading and Study Skills Program because "someone told me the program would help me study better." A behavioral analysis of this student's study problems revealed that she was studying prior to going to bed at night and that she invariably fell asleep while studying. The authors surmised that the textbooks and study environment, the bedroom, had become discriminative stimuli for going to sleep. The intervention plan developed called for two modifications. One, she was to develop a time management program which allowed her to study at periods other than before going to bed each night. Second, we introduced a study-concentration shaping procedure, which progressively increased the amount of time she spent studying during a specifically planned study period (6). Within four weeks the student was able to concentrate on studying for periods of 50 to 55 minutes without any signs of fatigue or sleep disrupting her studying.

The authors believe the advantages of a behavior modification approach offers the best method for changing study-concentration behaviors. This

Figure 2
Weekly Grand Mean Per Study Period for Duration of
Study-Concentration Behavior
Case No. 1



* The first and second weeks were used to obtain baseline data. The third through the seventh weeks were the period of intervention.

system does not have answers for all concentration problems, but it does offer a direct method of modifying many concentration problems about which students complain. If a program obtains results, you and the student will know about the results very quickly.

FURTHER RESEARCH NEEDS

The authors are aware they probably have raised more questions than they have answered with regard to concentration of attention problems. Attention research, per se, is a very broad field and this makes salient the fact that attention is a multifaceted phenomenon which is affected by many variables (Mostofsky: 1970).

We view current research needs as follows:

1. The specification of variables related to study-concentration behaviors which can be manipulated to help students increase study-concentration behaviors.
2. The development of measuring instruments or methods of help differentiate skill levels with some degree of validity and reliability.
3. The employment of existing or developed measuring devices or methods to differentiate between task relevant study-concentration behaviors and task irrelevant study-concentration behaviors, as well as using these instruments for predictive purposes.
4. The development of better and more economic intervention modules that can be used by students on a self-initiated basis, by paraprofessionals, or by individual instructors who have students with study-concentration problems.

We have initiated work in all of these areas, but we have only surfaced a few of the problems and related research needs in this area.

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HUMAN OPTIONS FOR HUMAN BEINGS

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The Developmental Learning Lab (DLL) at the College of DuPage is committed to providing individualized guidance and instruction to meet the varied needs of the students. From its modest reading classroom beginning, it has developed into a multi-disciplinary open lab that serves over 1500 students a quarter. It is the purpose of this paper to describe the philosophical constructs/methodologies upon which the program presently stands and to briefly outline the offerings.

It is probably not an overstatement to say that the philosophy of a learning lab mirrors, almost without distortion, the philosophy and personality of the director.

Perhaps one of the most important qualities of the director of any learning lab is the ability to visualize something not yet in existence. If, for instance, all that is anticipated are reading machines, carrels, and other paraphernalia of the usual remedial reading room, then, of course, that will be the extent of the program. The lab will grow only as large as the vision of the person responsible. Although the DLL did begin in one small room, as many programs do, it was not exclusively for students with reading problems. English skills, vocabulary, spelling, listening, notetaking, and study skills were included among the initial services. In subsequent quarters, math, Spanish, French, psychology, English-as-a-second-language, accounting, sociology, individualized courses, and others were added. The importance of the vision then becomes apparent. The Director must be able to anticipate and encourage the multiple offerings simultaneously. All this is dependent upon the key philosophical position, flexibility.

It is easy to use the word "flexible", and many programs claim "flexible" offerings. In actuality, however, the Director's responsibility is to provide and encourage flexibility in all areas. Perhaps it would be clearest to detail concrete ways in which the DLL implements flexibility.

FLEXIBILITY FOR STUDENT PROGRAMS:

1. An individualized program of study is written for each student with the emphasis on what the student needs, not what the syllabus requires.

2. The student is not limited but is, in fact, encouraged to explore many areas of study simultaneously. However, this is not required.
3. A student's program is continually revised, expanded and updated during his progress consultations.
4. Students are given free choice of multiple programs for each area of study: e.g., selection of traditional texts, mediated programs, etc.
5. A student may renegotiate a learning contract with an instructor at any time.
6. A student can work on his program and is welcome to use any of the facilities during all of the sixty-two hours the DLL is staffed a week.
7. Any student already enrolled at the College of DuPage is free to use all of the DLL facilities, without charge. This policy results in a variety of helpful services for students. A sampling of these includes a one time visit to check out punctuation on an English theme, a make up test for a Philosophy class, a series of short consultations in how to read a particular textbook, assistance from a Math instructor for a troublesome problem, answers to queries regarding term papers, and even translations of letters from foreign countries.
8. A wide variety of individual courses is available. Course syllabi have been developed by instructors from the teaching fields. However, some of the courses offer multiple options and any instructor can amend or modify the published syllabus to meet the students' needs.

CREDIT:

1. A student may enroll in DLL 100 on a variable credit basis from one to five hours, depending upon his needs, resources, etc.
2. He may also increase or decrease his hours of credit prior to two weeks before the end of the quarter.
3. A student can enroll until mid-quarter. However, if the deadline is passed he may enroll for the following quarter and begin working immediately.
4. A student desiring an individualized course can enroll any time before mid-quarter as stated above; however, the credit hours are not flexible: e.g., English 101 is 3 hours of credit.

EVALUATION:

1. Students enrolled in DLL 100 may choose either a traditional grade (A, B, C, etc.) or an S/U. If the traditional grade is preferred, a contract detailing the learning objectives for a specific grade is written jointly by the student and his instructor.
2. Non-credit students are not graded but may seek an evaluation consultation at the end of the quarter.

3. Incompletes are given freely. In line with the philosophy, students are not committed to the ten week quarter allotment for learning.
4. Generally a student in Individualized Courses receives a traditional grade, but S/U option is also available.
5. The DLL responds to the institutional necessity for evaluation but attempts to make it non-punitive for students.

CONTACT WITH INSTRUCTORS:

1. If a student has a preference for a particular instructor, the DLL staff attempts to fulfill the request.
2. Students may change instructors for any number of reasons: time conflicts, changing interests, personality conflicts, etc.
3. Generally a student arranges an appointment with an instructor weekly. However, additional or fewer appointments may be made to meet the student's needs.
4. Students enrolled in individualized courses often see an instructor once a week; however, this varies with the particular course and the needs of the students: e.g., some English courses can be completed totally independently, while a student in Spanish will have to be involved in conversation practice with the instructor every week.

In addition to providing options for students, it is necessary that the Director safeguard the flexibility of the faculty. Some of the ways in which the DLL operationally actualizes this philosophy in regard to staff are outlined below:

INSTRUCTORS:

1. Instructors who show an interest in becoming involved in the DLL are encouraged. A disinterested staff member is never required to accept a part of his teaching assignment in the DLL. Instructors must choose to participate.
2. A complete new schedule is made each quarter to accommodate interested instructors. Hence, instructor hours and times vary from quarter to quarter.
3. The Director looks for appropriate personality characteristics and teaching styles. The primary concern is the instructor's genuine belief that students are important human beings. Although teaching styles vary widely, from the retiring, organized, syllabus-following instructor to the breezy, vibrant, free-wheeling instructor, the commonality remains.
4. Full-time faculty members can, with the consent of their cluster college provost, work in the DLL as a part of their regular teaching load. However, they are also free to accept a DLL assignment on an over-load basis, both day and night.

5. Various professionals from the surrounding community are frequently given a part-time assignment in the lab. This is especially true in special areas such as English as a Second Language, Speech Therapy, the GED program, etc. The full time staff is also supplemented with part time people.
6. Faculty members often initiate special programs to serve student needs. In these cases the DLL assists the faculty member in his desire by providing space, clerical help, record keeping, encouragement, etc.
7. Because the instruction in the lab tends to be self-contained, work is evaluated during lab time and student programs are developed the same way—most of the instructors in the lab work strictly on a student contact hours basis, rather than on the basis of teaching a course. A ratio is used to calculate an instructor's salary. It has been institutionally determined that teaching a three quarter hour course is the equivalent of four and one-half hours of instruction in the lab. The instructional staff has generally committed itself to the system.

The DLL has, from its origin, been committed to the concept of differentiated staffing. In actual practice, the lab has on its staff 4 full time paraprofessionals and 1 full-time and 2 part-time clerical personnel. Without this base, the lab, given its present capacity and practices, could not function. Although the actual work hours are not flexible because of college wide policies, every attempt is made to utilize each person's respective strengths and talents. A brief description of each position and its accompanying duties are listed below.

LAB ASSISTANT:

1. The Lab Assistant has a Bachelor degree and teaching experience, in addition to a warm, accepting personality.
2. The basic responsibility of the position is direct supervision of the teacher-aides and the clerical employees. The Lab Assistant cooperates closely in carrying out the policies and procedures established by the Director.
3. In addition she provides invaluable public relations, such as giving information on the phone, giving tours of the lab to various visitors, answering questions of prospective students, etc.

TEACHER-AIDES:

1. The teacher-aides have either teaching experience or Bachelor degrees and were selected for their abilities to relate positively with both students and instructors.
2. Each teacher-aide is assigned several instructors. Their responsibilities are two-fold: to assist the instructor in any way possible (e.g., researching material, organizing student appointments, distributing

materials, etc.) and to assist any students using any of the lab facilities (answering questions, explaining operation of materials and equipment, carrying out programs developed by instructors, etc.)
3. In addition, each teacher-aide has responsibilities for various areas of record keeping: e.g., checking computer print-outs for accuracy, checking enrollment and attendance, gathering statistical data, writing and distributing informational memos to all students, etc.

CLERK-TYPIST:

1. The clerk typist helps meet the needs of the Director and all the instructors: e.g., typing, filing, xeroxing, etc.
2. In addition she answers the telephone and assists the teacher-aides at the reception desk. Because of her direct contact with students and public, her warm personality is an important asset.

STUDENT AIDES:

1. Student aides are full time students at the College of DuPage. Their work schedules vary from 10 to 20 hours per week.
2. Their duties are, of necessity, flexible: they run errands, file, help collect statistics, etc.

The details listed above are the ways the Director of the DLL attempts to provide flexibility for the students and the staff. The remainder of this paper is a description of some of the actual procedures and practices of the DLL.

The DLL began in a single classroom and as the enrollment and usage of the lab increased, the facilities have increased in size. Currently, the lab uses four rooms. Two are used primarily by the students while they work. A third is used as a para-professional work room. The fourth room is primarily used for conferences with students.

Before describing the individualized programs of the DLL, it seems important to distinguish between tutorial and individualized methods of instruction. Tutorial instruction is considered to exist when one instructor and one student meet for an extended period of time and work on the development of some area of "curriculum." Individualized instruction differs in that the student and the instructor meet together periodically to develop and evaluate a program of instruction designed to meet goals either determined by the student or to meet objectives generally considered to be those of a curricular area. It is hoped that these sets of goals coincide, and it seems more and more important that curricular design include both components. In such individualized instruction, the student and instructor may meet for shorter times or less frequently than in tutorial instruction. The DLL, because of its staffing, assures that an instructor in the area in which the student is working is available to assist when problems arise, even though the instructor with whom the student established his program may not be in the lab at the time the student is doing his work.

The services the lab offers fall into three general areas: a course, DLL 100; individualized courses equivalent to those generally offered in the regular college curriculum; and services which are offered on a non-credit basis usually in conjunction with a non-lab course offered by an instructor who may or may not be associated with the lab.

DLL 100 is a course which includes many possible areas of study for a student: reading, math, English, reviews for the test of General Educational Development (the high school equivalency test) and for the test on the United States and State of Illinois Constitution (required by law for graduation), English-as-a-second-language, Spanish and French-for-travelers, and study skills. A student who has enrolled for 3 hours of credit commits himself to completing thirty-three clock hours of work in the DLL. He is free to work primarily in one area or he may elect to include several areas of study in his work. For example, a student working in reading may also work in spelling, vocabulary, and notetaking. He may also work in math during the quarter. For example, at this time a commercial airline pilot is working on speed reading and Spanish and French for travelers.

Individualized courses are offered in accounting, anthropology, English, math, psychology, sociology and Spanish. These courses are regular college courses and differ basically only in their methodology. A student who is planning to take an English course begins by examining the course syllabus. Any questions he may have are answered and he is given a permit to register for the course. He then makes his first appointment with his instructor. If he has chosen, for example, English 103D, Language of Literature, he and his instructor review the course requirements and plan the way he will work through the requirements. The requirements for 103D include reading 10 short stories, 30 poems, and 3 plays. This reading is then discussed with the instructor during a conference. Conferences are usually scheduled weekly. The student completes a written exercise or an alternate on each of these readings and brings them to his conference. In addition, the student completes a minimum of one major paper or project in each of the areas studied. He develops an annotated bibliography of ten short stories from sources other than the text. He compiles an anthology of poetry around a central theme. Finally, he completes an in-class evaluation and the student and instructor discuss it at the final conference. All of the reading and writing for the course are done by the student at his own rate wherever he chooses to do the work. The conferences, for evaluation and planning, are held in the DLL. The scheduling of conferences is not rigid, so that a student can proceed at his own speed. He may finish the course before the end of the quarter or he may take longer than a quarter. The flexibility of this system of instruction is obviously of great advantage to any student whose time schedule precludes regular attendance at class or who prefers to work "on his own." The emphasis for the educational responsibility is focused on the student and this emphasis has proven to be a source of development of the sense of responsibility for students.

Finally, the third service the lab offers is on a non-credit basis. In this area a student who is having a particular difficulty with a part of a course may come to the lab for help. Another service of this type is the use of the lab for students to make up exams teachers have given in non-DLL courses.

The development of the total program has been the result of several factors. The administration provided initial support and has augmented that support as new student needs and methods of meeting those needs became apparent. This growing support, it is felt, is a reflection on the initial success of the lab. The instructors involved are comfortable in working on a one to one basis with the students and are continually devising strategies for assisting students in reaching their goals. The staff has explored many systems of instruction and in so doing has developed versatility with different teaching styles. All of the paraprofessional staff are primarily concerned with assisting students, so that while their personalities tend to complement each other, their divergencies provide alternate ways for students to maximize their learning. Because students are not forced to use the facilities, their motivation is internal and the monumental task of "motivating underachievers" has not been encountered. Students who feel they lack basic skills have already decided to try to acquire them. If they really lack such skills, they have the chance to develop them. Additionally, many students who feel they lack certain skills find that they do not, and so they are supported in their decision to continue in education. The heterogeneity of the lab population also enhances this development. A newly graduated freshman may find himself working across the table from an accountant who is either augmenting his own skills or developing new ones. A student working on reading may sit next to someone receiving basic math or algebra. Thus the student need only concentrate on his own work and need not compete with other students. Finally, the perceptions of the Director provide the means for maintaining a climate of learning. Because communication is open in all directions and because the individual worth of all involved with the DLL is assumed, flexibility is maintained. As you read this paper, it is already outdated. The lab is constantly reviewing itself and changing in order to meet student needs, rather than inhibit their satisfaction. This is its total commitment.

INDIVIDUALIZING A COLLEGE READING PROGRAM: MERGING PERSPECTIVES FROM COUNSELING PSYCHOLOGY AND READING

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INTRODUCTION AND PURPOSE

In one sense, individualized reading focuses on the individual-as-reader more than on the instructor-as-teacher (6). Reading can be seen as an act of personal involvement which is closely coordinated with the individual's growth and development. Therefore, individualized reading programs reject lockstep instruction and strict adherence to a single set of instructional materials. The instructor strives to catalyze reader involvement in the reading improvement process by attempting to diagnose and meet the needs of the reader. A variety of materials and approaches are used as the reader develops and strengthens skills. The ultimate goal of individualizing, however, is to change reading behavior. Somehow, a rationale needs to be developed around which the "techniques" of individualizing can be viewed in relation to changing reading behavior. From a psychological point of view, a therapeutic intervention is made only after the helping person understands what is motivating his client's behavior. The technique employed in the intervention springs out of this understanding of the specific individual's behavior pattern.

This paper will attempt to provide some brief "how-to" guidelines for those interested in individualizing a college reading program. This may be especially helpful to those teaching formalized developmental or remedial courses and wishing to move closer to a reading or learning center atmosphere. This will be followed by explanations of some of the psychological models commonly used to understand behavior and guide the process of counseling and therapy. Relationships between the psychological models and the rationale for individualizing will be noted.

STEPS IN INDIVIDUALIZING

1. Assess the Needs of the Reader

One of the first things the instructor should do when working with a student is to identify strengths and weaknesses. Study habits and attitudes, aspects of comprehension and reading rate and flexibility should all be assessed. This can be accomplished through a combination of an individual conference and administration of a test battery. The Survey of Study Habits and Attitudes (3), the Reading Versatility Test (9), the Nelson-Denny Reading Test (10) and the McGraw-Hill Reading Test (11) are all possible choices of testing instruments. *Reading Tests and Reviews* (4) is a suggested reference book which can be used to identify other testing possibilities.

2. *Establish Objectives*

On the basis of individual conferences and testing, the objectives for a reading improvement program can be established. It is important to establish initial goals which are a challenge to the student, but which are not unrealistically out of reach. A competency-based model can be followed with specific performance objectives delineated if desired. As progress is made, goals can be set at higher levels and new ones can be introduced for consideration.

3. *Provide for Self-pacing and Student Responsibility*

It is important for a student to be able to move through an individualized reading improvement program at his own rate. Higher level reading skills and/or materials written on higher readability levels cannot be of much benefit prior to mastery of fundamental skills and materials. Generally, it is the student's determination and attitude of wanting to improve that enables him to stay on task. Ideally, the instructor should avoid regimented time contingencies and encourage the student to be responsible for his own learning.

4. *Provide for Immediate Feedback and Reinforcement*

As students work towards completion of goals associated with their reading improvement program, they should receive continuous feedback relating to their efforts. Answer keys, programmed materials, graphic representation of results, etc., can all be used to give feedback and reinforcement.

5. *Organize Materials for Student Benefit*

Accessibility, interest level, and readability level are primary to the organization of materials in an individualized program. Arrangement of the classroom or lab, variety, and readability range all partially determine the ease with which students can become involved in skills development programs.

6. *Evaluate Progress and Recycle*

If a student is not making progress towards agreed upon objectives after a reasonable amount of time, it is usually advisable to reevaluate. Have strengths and weaknesses been accurately assessed? Are initial goals appropriate? Are materials currently in use interesting and manageable? Are negative attitudes and insecurities blocking progress? The answers to these and similar questions may suggest the need to negotiate and design a reading improvement program with the student.

MODELS OF HUMAN BEHAVIOR

The six steps listed above are simply techniques employed during the process of individualizing. The descriptions above are oversimplified. The effectiveness with which the techniques are employed and the thoroughness with which the "mechanics" are developed is dependent upon the instructor's understanding of how to use them to change behavior. Understanding some of the models used to analyze human behavior patterns can provide the reading instructor with a sound psychological base on which to base and extend the individualizing process.

Psychoanalytic Model

In the psychoanalytic model of human behavior (1), man is viewed as an organism that seeks to reduce tensions. Behavior is primarily determined by two forces. 1. A person learns quite early in life that the unrestricted expression and fulfillment of urges or impulses leads to punishing and disintegrating experiences. 2. These impulses or urges cannot be completely blocked but can only be modified. This modification takes the form of various defenses against anxiety. Thus, personality conflict is viewed as inevitable, and adjustment (the harmony achieved between inner based needs and interaction with the world) is merely that level of maturity reached by the greatest number of people in society.

Personality is seen as consisting of three major systems (2). The *id* is the original system of personality and consists of everything psychological that is inherited and present at the time of birth. The id is a psychological construct representing the inner world of subjective experience and has no knowledge of objective reality. It is the main energizer of personality and has as its goal the aim of tension-reduction or returning the individual to comfortable levels of sensation.

The *superego* is the system that reflects the moral sanctions of society. The superego is as non-rational in orientation as the id. It operates on the principle of moral realism or the idea that behavior is either good or bad with qualifications as to circumstances. The superego attempts to block completely those urges of the id that are contrary to socially internalized values of right and wrong.

The third system, the *ego*, is the only rational element of personality and is inevitably caught between the demands of the id for blind, immediate, instinctual gratifications and the equally irrational, absolute, moral sanctions of the superego. The ego must strive to satisfy the demands of the id, but with a minimum of disintegrating anxiety generated by the superego. When the threat or anxiety due to the psychic conflict between these three systems is great, defensive reactions may reduce awareness of motivation through disguising the aim of behavior or distorting one's perception or both. Much of the real meaning of human behavior is thus unconscious.

Rational-Emotive Model

In the rational-emotive model, the emphasis is on the concept that human emotion does not exist as a separate factor in human personality and does not catalyze behavior (5). Instead, this model operates on the assumption that emotions are largely controlled by cognitive, ideational processes.

The rational-emotive model holds that emotions and motivations of individuals represent learned reactions that can therefore be reviewed, changed or rebuilt by the individual. This rebuilding process takes great effort and practice on the part of the client. The chief source of human misery is seen as the emotional responses which are evoked not by actual circumstances that the individual finds himself in, but by the way he cognitively reacts to those circumstances. From this point of view, unhappiness is caused not by environmental circumstances, but by the words the individual says to himself in the presence of those circumstances. These cognitive reactions to situations are mediated almost completely by the particular value system or philosophy of life that the individual has developed. When these philosophical propositions are rational, self-correcting and reality-oriented, they lead to sound development and effective behavior.

Client-Centered Model

The Client-Centered model (12) is based upon "perceptual field theory." This model maintains that all behavior is a function of the individual's perceptions at the moment of behaving. People behave according to how things seem to them. The parts of the environment to which an individual is reacting are called his "perceptual field." An individual's perceptual field has the quality of reality to the individual and is always organized with respect to his self-concept. As perceptions based on self-concept change, so does behavior. When perceptions are vague or distorted, behavior is vague or distorted. When perceptions are clear and precise, behavior is clear and precise.

Since an individual's self-concept is the basic core around which all the rest of his perceptions are organized, he often perceives only what is appropriate for his self-concept. When a person's self-concept is threatened, his field of perception is often narrowed and distorted. He often responds only to the threat-producing aspects of his field. Often, he attempts to defend his existing self-concept and consequently his existing perceptual pattern.

Behavioral Model

This model of human behavior is based upon American behavioristic, experimental psychology (8). The leading pioneer in the research and writing that underlies behavioral counseling is B. F. Skinner.

The Skinnerian model of behavior uses the units of stimulus and response to study *observable* behavior under carefully controlled conditions. The model does not need or use elaborate constructs to explain what happens inside the organism. Instead, it focuses strictly upon the stimulus conditions that occur in the presence of the organism and the responses or movements that the organism makes upon the presentation of these stimuli.

Research conducted in the context of this model has established that when certain stimuli follow a response they will significantly increase the probability of the recurrence of that response. These stimuli are called "reinforcers." Reinforcers are usually drive-reducing or pleasure-producing stimuli such as food, water and sex. There may also be "negative reinforcers" that remove an unpleasant stimulus such as heat, light or electroshock thereby promoting a specific behavior pattern. Reinforcers may also be stimuli such as praise or recognition. Once a particular response has been paired with a reinforcing stimulus, it is termed a "conditioned response" and can be predicted and controlled through manipulation of the reinforcing stimulus.

Extensive experimentation and data collection in the area of animal learning has shown that it is possible to manipulate the behavior of many organisms to an amazing degree. While research of this type with human subjects is still not as extensive as that mentioned above, evidence is pointing to the fact that great amounts of human behavior can be controlled through the manipulation of reinforcers (8).

Transactional Analysis Model

The theory of Transactional Analysis can be broken down into four basic categories: 1) Structural Analysis; 2) Transactional Analysis; 3) Game Analysis; and 4) Script Analysis (7). Structural analysis will be focused upon for the purpose of this paper.

Structural Analysis involves the personality make-up of one person. Each person consists of the Parent, Adult and Child ego states. The Parent ego state consists of two parts, the Critical Parent and the Nurturing Parent. The Parent is like a tape recorder. It is a collection of pre-recorded rules for living. When a person is in his Parent ego state, he thinks, feels and behaves as one of his parents did. The Parent decides, *without reasoning*, how to react to situations, what is "good" or "bad" and how people *should* live. The Parent can be life-supporting and nurturing or it can be over-controlling, suffocating and oppressive. The Parent uses old tapes to solve problems and is useful when there is no new information to be computed by the Adult or no time to use the Adult to think.

The Adult ego state is a human computer. You feed it data which it stores or uses to make computations, according to a logical computing program. The Adult is the information seeking and giving part of us which has little emotion. The Adult emotion would consist of a feeling of satisfaction as well thought out plans actualize themselves as anticipated. The Adult computes all the facts fed to it. If the facts are incorrect, the Adult computer will produce incorrect answers.

In TA, the Child is seen as the source from which the best in human beings comes—the only possible source for creativity, recreation, and procreation. The Child part of us is known as the "seat of most feelings." The

Child can be divided into three parts: 1) *Natural Child* who acts on his own feelings and wants to do what he wants to do when he wants to do it regardless of what his Internal Parent wants; 2) *Little Professor* who curbs the desires of the Natural Child and searches the social situation for an acceptable release of the Natural Child's wants and 3) *Adapted Child* who is the end result of modifying the Natural Child's urges through the Little Professor and adapts those original urges into socially acceptable expression. In its most *undesirable* form, the Child completely dominates a person's life as in the case of persons who are severely emotionally disturbed; like alcoholics whose Child will drive them to virtual self-destruction through drinking. The Child may also appear for long periods of depression or despair as in the case of people who have incurred a great loss.

All three parts–Parent/Adult/Child–are important but they often disagree with one another. It is your Adult's job to help meet the Child's needs without getting into trouble. Your Parent's job is to treat the Child in you with respect and love. Usually the best way to solve a problem when your parts disagree is to let your Adult decide. One of the purposes of TA is to get all three parts of you working well together.

When all three parts are *NOT* working well together, it can lead to contamination which means "messing." The Parent or Child part of you can interfere with your Adult and "mess up" whatever you are doing or feeling. When a contamination comes from the Parent, *it is called prejudice.* For instance, Dr. Needlepoint is a nuclear physicist who is looking for a lab assistant who can do very exacting, painstaking work with valuable equipment. In reviewing his applicants, Dr. Needlepoint automatically disqualifies a black person because he believes that black people are innately emotional and slow-moving–skillful with their whole bodies rather than with their hands. This data comes to Dr. Needlepoint's Adult from his Parent and his Adult is contaminated because he has accepted the Parent tape as fact without checking it against reality.

IMPLICATIONS FOR INDIVIDUALIZING

The insight that can be gained by the reading instructor who understands behavior from several points of view can be an invaluable asset and guide in the context of an individualized program. For example, from the psychoanalytic model comes heightened awareness of the importance of unconscious motivation and early childhood development. Unresolved anxiety due to intrapsychic conflict (id, ego, superego) during pre-school and elementary years could be one of the factors retarding development of reading skills. The individual conferences which take place during the first two steps of the individualizing process may point out both the need for referral for counseling and the need for patience with the student's rate of self-pacing.

From the rational-emotive model of behavior stems the insight that poor reading ability may derive, in part, from the illogical sentences ("I've never understood what I've read," "I'll never be able to improve my comprehension," "I've always been a failure in school and will never be successful academically") students have been saying to themselves for years. Reeducation towards a more positive, logical thinking process and provision of opportunities in which success can be experienced is critical. Such a need provides a psychological rationale for all the steps in the individualizing process.

The effect that the learning environment can have on the learning process of the individual is clearly indicated within the behavioral model of human behavior. Learning contingencies must be arranged with careful precision if the reader is to extinguish inadequate responses to the printed symbol and learn new ones. Careful identification of the reading problem, establishment of realistic objectives, progressing at a rate appropriate for the individual, opportunity for immediate, positive reinforcement of correct responses, appropriate selection of materials (techniques) and evaluation followed by a change of tactics (if necessary) are all endorsed from the behavioral point of view.

The fact that poor reading ability often relates to lack of self-esteem and a negative or inaccurate self-concept based on faulty perception of self is a possible interpolation of the Client-Centered model for understanding why people behave as they do. Certainly all the steps in the individualizing process could be used by the instructor to convey trust and acceptance and to provide opportunities for the individual to reassess that aspect of his self-concept that encompasses reading ability.

Finally, from the transactional analysis model of behavior comes the understanding that an individual can be completely contaminated and indoctrinated by "playbacks" of parent tapes testifying that "you have always been a poor reader and *should* know better than to think otherwise." Another possibility is that child-like stubbornness to parental injunctions to achieve "messes-up" most attempts at improvement. Numerous other interpretations and applications could also be made.

In short, there is a strong psychological base or rationale for the process of individualizing whether one operates from a traditional or a competency-based point of departure. Increased understanding of motivation and behavior through familiarity of available models of human behavior can serve to increase the insight with which the reading instructor approaches those in need of help.

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TECHNOLOGICAL ALTERNATIVES IN LEARNING

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My mission in this paper is to help you become aware that your potential as a learning facilitator can be significantly increased as your knowledge and use of technology increases.

My goal in this paper is to explore with you not only what educational technology is, but also to present eight technological alternatives that each of us faces in our roles as learning facilitators.

My objectives for this paper are three-fold: Given a list of eight alternatives in a paper entitled "Technological Alternatives in Learning," the reader will be able to

1. determine what alternative he or she is presently exercising;
2. decide whether or not to explore one or more of the other alternatives;
3. implement, within three months of this reading, one change in administrative, instructional, or learning alternatives to optimize the learning environment for college learners.

These are the mission, goal, and objectives that I have set for this presentation. They are somewhat presumptive—as all learning objectives are. They are, however, also well-intentioned.

TECHNOLOGICAL ALTERNATIVES IN LEARNING

Before developing a list of technological alternatives in learning, let us define technology and educational technology. Galbraith (4:12) writing in *The New Industrial State,* defines technology as ". . . the systematic application of scientific and other organized knowledge to practical tasks." Ely, as chairman and editor of AECT Committee on Definition and Terminology (12:36), defines educational technology as

> . . . a field involved in the facilitation of human learning through the systematic identification, development, organization, and utilization of a full range of learning resources, and through the management of these processes.

This "facilitation of human learning" depends upon a synergistic relationship among administrators, instructors, and learners—each of whom can respond to educational technology in one or more of the following ways:

1. be ignorant of technology
2. ignore technology
3. acknowledge the existence of technology but condemn it as mechanistic and inhumane
4. acknowledge the existence of technology, recognize its potential, but avoid it as mysterious, complex, and unmanageable
5. accept and use technology uncritically
6. accept and use technology critically, imaginatively, and accountably
7. accept, use, and assist others to use technology critically, imaginatively, and accountably
8. develop and improve technology

Let's examine each of these eight technological alternatives in learning.

Alternative #1: Be ignorant of technology. It does not seem possible that anyone who professes to be an educator could be ignorant of technology. We can, however, test this assumption by asking an educational administrator what he knows about MBO (29; 32), the OD process (5), the Delphi technique (18), PPBS (22), PERT (9), CAI (28), Information Utilities (35), or MIS (4; 11).

We can further test this assumption by asking college faculty to discuss the educational contributions of Postlethwait (40), Fred Keller (23), W. James Popham (37; 38; 39), Robert Mager (27), Bela Banathy (3), or Robert Weisgerber (45; 46).

We can test this assumption more specifically by asking college reading/study skills specialists to identify such programs as *The Relevance of Sounds* (10) and *The Relevance of Words* (36), or to distinguish between a Crowderian or Skinnerian text, or to define compressed speech (42; 44), Cognitive mapping, the diagnostic procedure used by Oakland Community College (19), or the SR/SE, a diagnostic/prescriptive reading/study skills instrument (8).

Admittedly, there is an explosion of information. But we must manage it. We can manage it. Oettinger (33), predicting the revolutionary impact that educational technology will have in the year 2018, concludes his essay with this reminder:

> By opening wide the floodgates of information, technology has created, as it always does, both an opportunity and a threat. The remarkable machinery essential for making the most of it is where it has been for millenia—right above our noses.

Alternative #2: Ignore technology. This is easy to do if we absent ourselves from professional conferences and workshops. This is easy to do if we find excuses for not reading the professional literature. It is a natural attitude to take if we feel unchallenged by our roles as learning facilitators; if we feel smug about our instructional strategies; if we feel unconcerned about our pedagogical failures; or if we feel indifferent to the problems of our learners.

For those who ignore technology, let me draw your attention to a warning given by guest editor Robert Havens (17) in an issue of *The Personnel and Guidance Journal* that had as its theme: "Technology in Guidance." Havens' warning to his counseling colleagues is appropriate for us.

> Counselors must know how to communicate with the technological specialist, because technology will come to guidance. It must come. We need it. The important question is *who* will decide what it will do *for* people and *to* people. We must determine, in consultation with technologists, what programmatic applications technology will have in guidance. We must not let the technologists define our role.

Don Fuller (13) makes the same point in a book that is a minor classic in executive management: *Manage or Be Managed.*

Alternative #3: Acknowledge the existence of technology but condemn it as mechanistic and inhumane. Are those who espouse this alternative suggesting that what they do now is intuitive and humane? Is the lecture system justifiable when the professor repeats annually the same content to a captive audience who may not criticize either content or presentation? Are reading and study skills programs humane when they not only do not begin where the learner is but do not diagnose what his strengths and weaknesses are through surveys, tests, and personal interviews?

Four years ago, at the Second Annual Conference of this Association (7), I suggested some assumptions that, in my belief, were characteristic of a humanistic or learner-centered approach to college reading/study skills programs. Those assumptions have formed the rationale of Learning Assistance Systems and Programs at California State University, Long Beach—a system that attempts to manage technology in a human way—as the following opening paragraph from the Learning Assistance Center's official fact sheet indicates:

> Learning Assistance is a support service for students and faculty that attempts to help students learn more in less time with greater ease and confidence. It utilizes a systems approach. It is totally learner-centered with a diagnostic/prescriptive rationale that considers learning to be individualistic, mathemagenic, cybernetic, and personalized (6).

This human dimension in learning technology is being increasingly recognized. In the past two years, a number of major conferences have focused on this concern. At the most recent, a symposium held at Oklahoma Christian College, Dr. Nils Wessel, President of the Alfred Sloan Foundation (31), was reported to have affirmed that

> Instructional technology has something to contribute to the realization of any and all of the human values to which education is dedicated. The test is our own ingenuity and our own ability to wed the technology to the aspiration. In short, important though levels of academic achievements and performances are, they are hollow and meaningless indeed unless man's spirit is our first concern.

Alternative #4: Acknowledge the existence of learning technology, recognize its potential, but avoid it as mysterious, complex, and unmanageable. I see this attitude prevailing among many college instructors. It can be changed, however, by getting involved with learning technology. Workshops, field trips, "hands on" experiences with computers, auto-tutors, recorders, and other equipment will dispel any apprehensions as to their mysteriousness, complexity, or manageability. A regular diet of learning technology literature—periodicals such as *AV Communication Review, Audiovisual Instruction, Media and Methods, Educational Technology, Journal of Educational Technology, Training in Business and Industry, Journal of Programmed Instruction,* and *Journal of Educational Technology Systems*—can open up new approaches to instruction and learning.

A weekend of intensive reading in some basic texts such as Gerlach and Ely's *Teaching and Media* (15), or Johnson and Johnson's *Developing Individualized Instructional Material* (21), or the monumental two volume work by the Commission on Instructional Technology, *To Improve Learning* (43), can excite the reluctant instructor to experiment with new instructional and learning strategies.

Alternative #5: Accept and use technology uncritically. For some instructors and administrators, each new technological change becomes a panacea to cure the problems of instruction and learning. Equipment and materials are frequently purchased without previewing or field testing them. Equipment and materials are frequently used without benefit of their accompanying study guide or field manuals.

Equipment and materials are discarded in favor of newer equipment and materials without any learner feedback or performance data.

For the instructor and administrator who want to use learning technology critically, tools do exist that can help in the selection and use of equipment and materials. In the field of adult basic education, for example, a monthly informational abstracting service is available from the Adult Continuing Education Center at Montclair State College in New Jersey. Another agency, EPIE Institute, collects and synthesizes information on the performance characteristics of instructional materials, equipment, and systems. The periodical, *Audiovisual Instruction,* publishes a monthly EPIE report. *Audiovisual Instruction* also publishes up-to-date reviews of films, filmstrips, records, and tapes as part of an ongoing service of *Multi-Media Reviews Index* (30). One other film reviewing service, *Landers Film Reviews,* a Los Angeles service, gives comprehensive bibliographic film information and reviews of film content and quality of presentation. *Audio Cardalog* is a monthly recording review and appraisal service that evaluates over 400 recrods annually. Two major sources that can aid in selecting media are the *Learning Directory* (26), a seven volume index to 205,000 items in 47 media, and the ten NICEM indexes available from the University of Southern California. Instructors and Administrators can maintain currency in the latest media and materials by getting on the mailing lists of ERIC Clearinghouses in Adult Education (Syracuse University), Educational Media and Technology (Stanford University), Junior Colleges (UCLA), Tests, Measurement, and Evaluation (ETS), Reading and

Communication Skills (NCTE), or any of the 16 other Educational Resources Information Centers.

Alternative #6: Accept and use technology critically, imaginatively, and accountably. This alternative can be restated as an educational maxim: "Adapt rather than adopt technology." Let me illustrate with six examples:

1. An English firm has produced packets of facsimile primary materials that illustrate a historical concept or event. These packets, called Jackdaws (25), can be adapted for self-paced, independent learning by adding to the visuals a cassette on which the instructor guides the learner through the materials in the packet.
2. On every campus there are many silent filmstrips that can be revitalized and humanized by adding an up-to-date commentary by the instructor.
3. Commercial sound filmstrips can be adapted to special groups by substituting for the commercial cassette a language pattern and a voice that identify with groups such as Chicanos, Blacks, native Americans, or foreign students.
4. A special introduction or local color insert can be added to a commercial filmstrip or slide set by using a "U" Film Write-On Filmstrip Kit manufactured by Hudson Photographic Industries, Inc., or Write-On Slides by Kodak Company.
5. Overhead transparencies can be adapted for near-point use on a Technilite desk screen. The addition of a cassette to explain the visual creates an inexpensive audio-tutorial module.
6. Cassettes can be adapted for use with the partially sighted or blind students by converting them to compressed speech with a machine like the VOKOM-I Speech Compressor/Expander by PKM Corporation.

Alternative #7: Accept, use, and assist others to use technology critically, imaginatively, and accountably. We must share our resources, our ideas, our innovations, our successes and our failures as instructors and learning facilitators. B. Lamar Johnson, founder of the League for Innovation in the Community College, said it so vividly in a League newsletter (20), "Let's Steal from Each Other!" We need to visit each other and exchange ideas and materials. We need to develop a resources and information network in which we share both as developers and consumers. Such a network could save us time, energy, money, and personnel.

We are far from such an ideal. At the last WRCA Annual Conference, Deborah Osen (34) urged WCRA members to submit copies of instructional goals and objectives to the College Reading Instructional Objectives Depository at California State College, Fullerton's Institute for Reading. Goals and objectives received at the Depository were to be available to WCRA members. Since Osen's request, not one goal or objective has been received by the Depository.

Alternative #8: Be a developer and improver of the technology. If we are critical of the equipment and materials that are being developed commercially, if we feel that materials should be more relevant, more sophisticated, more vital, or more learner-centered, why don't we develop such materials? There are guidebooks (1; 2; 16; 24; 41) available that can help us to design systems and write programs. Then someone else can criticize our programs and go on to improve our improvement.

CONCLUSION

These are the eight alternatives I have posed for you. Technology, and the alternatives in learning it offers, can challenge us to become better learning facilitators.

I conclude this paper in the spirit that I began–presumptive but well-intentioned–charging you to meet the technological challenge in the following ways:

1. Be alert and aware. In spite of the information explosion, you can manage to stay informed. Make a management information plan. List the sources that you want to review regularly. Use a computer retrieval system such as "Dialog," the Lockheed Information Sciences Laboratory Service, or the Personalized Bibliographic Service in Santa Ana, California.
2. Be responsive. Find out what your learners think of their center, their program, your instructional strategies, the learning equipment and materials. Allow the learner to participate in setting goals and objectives.
3. Be open. Use anybody and everybody, anything and everything to help learners learn.
4. Be resourceful. Constantly adapt equipment, materials, and environments to your goals and objectives.
5. Be accountable. Squeeze every resource to the maximum. Before asking for more space, more people, more equipment, more materials, and more money, look at the utilization of your current facilities, personnel, equipment, and material.

Alertness, awareness, responsiveness, openness, resourcefulness, and accountability are all characteristics of learning facilitators who choose to master and exploit technology as positive alternatives in learning. Exercising these positive alternatives can result in helping "learners to learn more in less time with greater ease and confidence."

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REACH OUT WITH READING: THE READING PROGRAM AT METROPOLITAN STATE COLLEGE

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Meteorology students monitoring weather instruments, policemen poring over Constitutional Law, veterans preparing to enter college, and Chicano students studying Chicano culture are some of the students involved in a multidisciplinary approach to reading and writing instruction at Metropolitan State College in Denver. We know that reading is not an isolated activity and therefore should not take place in isolation. Rather, reading instruction is an integral part of every class and program and should occur in conjunction with other classes and programs.

Metropolitan State College in Denver, Colorado is an urban, open-door, four-year state college. The 8,000 students range in age from 18 to 71, with the average being 26. Their backgrounds are diverse: 85% work; many have families; and they attend classes which are offered six days per week, from 7:30 am until 10:00 pm. However, with such a transient, urban population (approximately 25% of potential continuing students drop out each quarter) many students' reading needs are not served through the regular class offerings. The Reading faculty must reach beyond its departmental walls.

The Reading Program at Metropolitan State College is not a "remedial" program. Reading classes are not required. Through voluntary enrollment, about 300-400 students each quarter enroll for Reading Improvement classes which stress reading comprehension and study skills in the content areas. The program includes Reading Improvement classes, reading-writing block class, support labs, workshops, tutor training, mini courses, and a variety of programs operated in conjunction with other departments.

THE BLOCK CLASS

A team-teaching approach to reading and writing skills was incorporated in an Elements of Communication class which meets in two-hour blocks, three days a week, for six hours credit. The class is taught by an English teacher and a reading teacher and stresses an integrated approach to learning reading and writing skills. For example, when students are learning to write topic sentences in paragraphs, they are also learning to read a paragraph for the main idea and to identify the topic and attitude; when they are writing paragraphs developed by illustrations and examples, they are also learning to read for significant details; and when they are learning to make their writing coherent with such devices as transitional sentences, they are also learning to recognize signal words as reading aids.

Each class period begins with ten or fifteen minutes of sustained silent reading (2). Thus, reading becomes a habit even for those students who hate to read, because everyone is reading. In fact, when the instructors arrive, the students are usually sitting on the floor outside the classroom actually reading books!

The curriculum includes writing sentences, paragraphs, and essays; it also covers reading comprehension, such study skills as text reading, listening, note taking, and test taking, vocabulary skills (for both reading and writing purposes), and developing flexibility of reading rate.

The approaches to teaching are varied, and include lecture, discussions, discussion games, group efforts to solve problems or work exercises, movies, records, and video tapes. Both teachers are present, and sometimes take turns teaching or each works with a small group.

One example of a lesson is the unit on note taking. After the class discusses note-taking skills (each student's notes from his other classes are examined), a video tape is shown of a lecture from an upper division class at the college. The current favorite is a political science lecture entitled "Youth and Education in the Soviet Union." The students take notes on the lecture; their notes are checked, and later, after discussing different types of essay questions and how to answer them, the students take a practice essay test over their notes. Students learn to think ahead so that they learn *how* to study, and consequently are amazed that it isn't considered cheating to preview a chapter and read the summary first. Having a *purpose* for reading or writing or note taking or preparing for exams is a new concept to them.

INDIVIDUAL CONFERENCES

Besides group instruction, each student has a 20-30 minute reading conference as well as a writing conference each week with the instructors or trained peer tutors. The student's work is evaluated at each conference through a reading and writing contract. At the writing conference, the week's writing assignments are appraised with the student present. At the reading conference attention is given to specific reading skills needed (e.g., vocabulary in context, structural analysis skills, reading the student's history text, etc.). These individual conferences are the key to success, for the student is reinforced as a human being, rather than as a mere number on a class roll. Since we began the individual conference system, students have shown a marked improvement in their attitudes about the course and about themselves.

Through this system, the instructor may discover that a student who appears not to read well because his comprehension scores on multiple choice tests are low (as on SRA or Controlled Reading exercises) actually *does* understand what he has read but is not a test-wise student. Further, by talking with a student, the instructor witnesses and understands the student's thinking processes. Some students who appear to have few basic skills have demonstrated critical thinking ability when the material is relevant to their lives. It is possible to analyze specific problems during an individual conference and to make suggestions based on feedback from the student. Also, it is possible to discuss the ideas in other courses he is taking, to talk about a psychology text and examine its vocabulary, or to teach the syllabication skills which the student couldn't get on the SRA Power Builder (if that is the material he chose for practice). But most important, students re-affirm themselves as worthwhile human beings.

BEYOND READING AND ENGLISH

Meteorology Field Program

During spring and summer, fifteen meteorology students daily ride circuit on a network of instruments and recording devices or monitor hail storms in the radar room or fly with research aircraft over Northeastern Colorado as they participate in the National Hail Research Experiment. The students want to write the results of their field experience and requested help with their writing and reading skills. A course has been established with an English writing teacher working with the students at the field site and in the city classroom to produce a publication of professional quality.

Law Enforcement Support Lab

The head of the law enforcement department wants educated policemen. Therefore, once a week the students who are studying constitutional law meet with a writing and reading teacher for a support lab which provides them with one extra credit and help in reading the law briefs and in writing clear, concise reports. The writing and reading teachers work with the law enforcement faculty in defining the skills necessary for success in the class. The texts from the class serve as texts for the lab.

Mechanical Engineering Technology

A member of the mechanical engineering technology faculty approached the reading department for assistance in procedures for evaluating potential engineering technologists. A reading inventory was taken from the ASEE's 1972 report on Engineering Technology, with questions developed by the Reading Faculty. The text contained four parts designed to measure comprehension of an extended reading, short paragraph comprehension, ability to read charts and graphs, and vocabulary in context. The Diagnostic Spelling Test of the Relevance of Words Kit (4) was given and the students were referred to the Skills Center if they wanted to work on their weaknesses. A writing sample was scored on a five-point scale by a member of the English department. A study is under way to correlate performance of the students in subsequent classes with the diagnostic results, with an ultimate goal of developing a series of tests to help advise students when they enter the program. Students who have weaknesses are referred to the Skills Center for tutoring and advising.

Tutoring and Tutor Training

The reading department participates in a program of tutor training for tutors in the Skills Center, Upward Bound, Veteran's Upward Bound, Weekend and Evening College, and Project '75. The emphasis is on the need to work with reading and study skills in every area (including mathematics). The Skills Center and Reading Lab are in close proximity, but tutoring also reaches out. Tutors are working in every building: in the math lab, in the science building, at Weekend College, in the Student Activities Center and at the Urban Studies Center. The tutors are Metro State students on work-study grants who are able to work 15 hours per week at their tutoring jobs, students receiving credit through practicum classes or seminars, or student volunteers. The reading faculty meets with the tutors to discuss the needs of their students in reading and study skills and to explain the use of Reading Lab materials.

Support Courses in Economics, History, and Chicano Studies

The economics, history, and Chicano studies departments have indicated an interest in employing the support lab concept in conjunction with classes where students show deficiency in reading and writing and study skills. The details are being worked out, and in each case the text and outside readings of the course will be the materials for the support lab. An informal diagnostic test is being devised in each area, and strong tutorial assistance is planned.

Mini Courses and Workshops

Other alternatives to classes are the workshop and the mini-course. A writing workshop was developed this year with the primary emphasis on lab approach to writing, with several tutors aiding an instructor. A workshop in reading and writing skills was designed for foreign students. A reading workshop is being developed this spring quarter. Several mini-courses have been or are being designed to cover study skills, reading graphs and charts, studying in the sciences, using the library, etc.

All of these new classes and approaches have developed after numerous discussions with the college faculty. This kind of reaching out requires personal contact and a willingness to cooperate with other faculty and students to determine the needs in each area and to provide for constant evaluation. The reading department must consider itself as serving the needs of the entire college and therefore must continue to reach out.

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DATA COLLECTION: A CYBERNETIC ASPECT OF A LEARNING ASSISTANCE CENTER

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THE LEARNING ASSISTANCE CENTER

Using as a model the Learning Assistance Center at California State University, Long Beach, we can describe a Learning Assistance Center as a support, delivery, and referral service for the entire campus community: students, faculty, staff, and administrators. There are three major aspects to its services–personal learning skills, academic aids, and support of faculty instruction. Assistance is given in these three areas through a systems approach. Briefly and concisely, the CSULB Learning Assistance Center is totally learner-centered with a diagnostic/prescriptive rationale that considers learning to be individualistic, mathemagenic, personalized, and cybernetic (9;10).

It is the latter aspect of a LAC–the cybernetic aspect within a systems approach to instruction–which will be the focus of this paper. More specifically, we will discuss data collection and analysis as a cybernetic aspect of a Learning Assistance Center.

CYBERNETICS AND ACCOUNTABILITY

In a recent ERIC paper that overviews systems literature, Twelker and others define a systems approach to instruction as "... a systematic way of identifying, developing and evaluating a set of materials and strategies aimed at accomplishing a particular educational goal." (27:1)

Banathy, a major proponent of a systems approach to instruction, points out that cybernetic data or "continuous feedback of performance data into the system" is critical "for the purpose of making adequate adjustments in the system." (4:82)

He further states that

> The self-adjusting characteristics of systems development prescribe change as a perpetual process in the development, operation, and maintenance of systems. We can safely say that the only valid means of maintaining a system is by purposely changing it. (4:82)

For quality control (4:90) a Learning Assistance Center must have incorporated within its system a mechanism for continuous feedback, ongoing analysis of that feedback, and means for adjusting and changing the system where appropriate. In fact, all the three primary actions of a system–problem definition and organization, system analysis and development, and system evaluation–are interrelated by feedback built in the system. (27)

In terms of accountability being concerned with effectiveness and efficiency, a Learning Assistance Center is held accountable through this cybernetics approach to systems. This allows the LAC to be accountable not only to itself as a system and a program, but also to be accountable to its learners and learning facilitators, the campus it services, its sponsoring agency, and to other Learning Assistance Centers.

Improved data collection, analysis, and subsequent changes within the system are required for improved accountability. Agencies at all levels–federal, state, local, and campus–are demanding increased efficiency in the use of resources for improved accountability. An excellent reference on accountability for LAC personnel is Metfessel's and Hammond's paper entitled "Everything You've Always Wanted to Know About Behavioral Objectives But Were Afraid to Ask, or How to Develop Accountability Programs in the Affective Domain." (18)

Further, Nita Myers Earnheart, a learning practitioner involved with UCLA's Learning Center, in a recent paper warns us that "The word *accountability* is increasingly in the campus air, hanging particularly heavy over the heads of those student services concerned with learning problems and techniques." (13:34)

LITERATURE AND RESEARCH

Although the literature contains many surveys and descriptions of Learning Centers and their programs (3; 5; 6; 11; 15; 20; 26; 29), little can be found that discusses data collection and analysis to derive accountability. Bleismer documents this in his most recent available review of the literature, "1971 Review of Research on College-Adult Reading." He states that "Purposes for presenting a number of programs at this conference [National Reading Conference] last year were mainly ones of description (Cartwright, 1970; Christ, 1970; Ewing, 1970); but some also included reports of evaluations to some extent." (8:299) Bleismer further states that "The contents [of the *Proceedings* of the Western College Reading Association's Fourth Annual Conference] appeared to be mainly descriptions of specific programs in the WCRA area; but several included evaluation reports or other research aspects . . ." (8:298) Bleismer alludes here to the papers by Adams (1), Biggs, and others (7), Hagstrom (14), and Reid (24).

A further search of the literature indicates that there were six articles that treated accountability with reference to learning assistance programs.

Among these were two by Martha Maxwell (16; 17), one by Stafford North (21), one by Chester Tillman (25), one by Deborah K. Osen (23), and one by Drexler and Pepper (12).

In this last paper, Drexler and Pepper caution "that the most commonly used criterion of success of a program can often be misleading." (12:193) This warning refers to the current practice of evaluating and discussing program effectiveness as it centers around assessment of the total program. We must remember that a program is comprised of several components. We must also remember that each of these components should be assessed separately with the understanding that they interface with one another. An overall program evaluation leads only to the evaluation of the program, not to the evaluation of its component parts. An evaluation of separate programs and activities in a Learning Assistance Center as parts affecting the total system can lead us then to accountability of each specific component.

GATHERING SENSOR DATA

Let's turn now to a discussion of some practical means for gathering sensor data that assesses Learning Assistance Center programs and activities. The suggestions given below have been successfully employed at CSULB's Learning Assistance Center. Only three aspects of the Center's total assessment procedure will be considered: 1) usage of the Center, 2) usage of the materials in the Center, and 3) usefulness of the material to the learners in the Center.

Evaluation Aspect #1: Usage of the Center

To determine usage of the Center, we are presently using a form which we have labeled the "Sign-in Sheet." Every entrant to the LAC is asked to sign in. In the appropriate spaces provided, the entrant prints his name, enters his student ID number, checks his campus status (freshman, sophomore, junior, senior, graduate, EOP, faculty, staff, or visitor), and further, if a student, gives the course number and faculty member from whose class he was referred, or if a faculty, staff, or visitor, gives his school, department, and position.

Several graphs of usage of the Center are kept from the data provided by the "Sign-in Sheet." First, a day-by-day graph, and at least once a semester, an hour interval graph, is kept of the number of persons entering the Center. In this manner the Center's personnel determine the peak days and hours of operation and the Supervisor schedules her staff's work hours accordingly.

Second, a month-by-month tally of users, broken down into the categories of campus status, illustrates the increase or decrease in overall and categorical usage of the Center. Of course, this is sensor data which becomes optimally useful only when the LAC staff asks itself the reasons for the appearance of the data.

Evaluation Aspect #2: Usage of the Materials in the Center

We have employed at our LAC another form which provides usage data on materials—the "Check-out Slip." All materials within our Center are checked out on this slip. A month-by-month tally of the check-out slips provides the LAC staff with an accurate count of the number of times any piece of software was used in the Center, and also an accurate count of the number of times each specific item of software was used in the Center. This sensor data is analyzed by the LAC staff on a bimonthly basis. During these assessment meetings the question is asked: "Why is *Wordcraft*/1 being used more often than *Wordcraft*/2?" This process of assessment of materials usage in conjunction with an assessment of material usefulness (see "Evaluation Aspect #3: Usefulness of the Material to the Learners in the Center," this paper) leads to many effects. For example, in some cases, it culminates in the buying or production of more programs of the type that are proving themselves cost-effective, and in other cases it leads to the steering away from those programs which are not proving themselves cost-effective. Another result of the assessment procedure is the encouragement on the part of the LAC staff of greater utilization of present programs (encouragement, on one hand, might simply mean making the program more accessible, or, on the other hand, publicizing the program). Another effect which often arises out of the analysis of usage of a specific program leads to the adaptation of that program for greater usefulness.

Evaluation Aspect #3: Usefulness of the Material to the Learners in the Center

Further data is collected from the "Check-out Slip;" this data is in terms of usefulness of the material to the learner. The learner, upon returning his checked-out materials to the LAC aide, is requested by the aide to check both the content and format usefulness of the material on a three-point scale—*very helpful, somewhat helpful,* and *not at all helpful.* At the bottom of this slip a space is provided for further comments.

This information is also tallied once a month and the results are reviewed on a bimonthly basis. (Mention should be made here that at the present time we are in the process of setting up a computer program which will tally this sensor data). If, in the process of scrutinizing the results from this data collection, it is noted that a particular program's content and/or format is judged by many learners as not at all useful, the LAC staff attempts to evaluate the "Why?" The answer to this question is often found within the learner's file folder on the "Activities Log and Response Sheet." Every regular user of the Center is provided with this sheet for logging his activities in the Center and making responses to them. Also, the LAC staff member/counselor who interfaces with the learner makes written responses on this same sheet to the learner's reactions and comments. This is in addition to the regularly weekly scheduled appointment between the learner and his LA Counselor. From this response column the Center derives more data on the usefulness of its material.

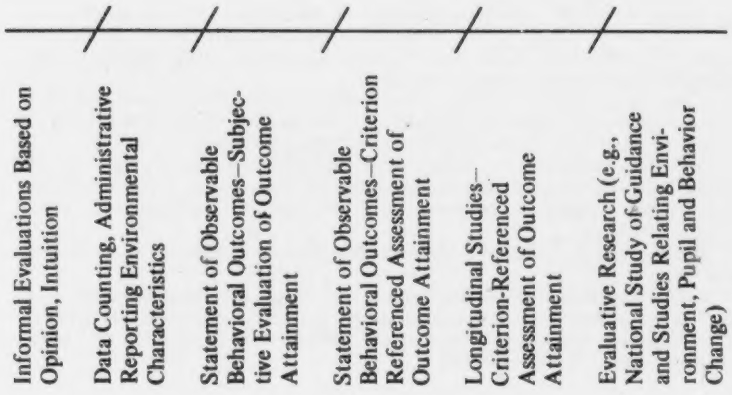
CONCLUSIONS AND ONE STEP BEYOND

We have only examined a few of the methods employed at CSULB's LAC to measure the effectiveness of some of the Center's component parts. For a more comprehensive and detailed account of assessing learner programs refer to Nicholas J. Anstasiow's article "Measuring Change–A Time Dimensional Problem" (2) and Metfessel's and Michael's paper "Multiple Criterion Measures for Evaluation of School Programs" (19).

It is admittedly true that the assessment methods described above require a considerable amount of time and effort on the part of the LAC staff and its learners, but the reward of accountability and subsequently the ability to upgrade an operation from the data gathered is certainly well worth it. In fact, being aware of this cybernetic aspect of assessment of a system is a must for any systems approach. Twelker and others remind us that: "If evaluation techniques are not a prominent part of the proposed procedures [of a systems approach], either the approach is weak or it is not a systems approach. Evaluation techniques along with the careful statement of objectives are critical parts of any 'useful' systematic approach." (27:10)

It is also admittedly true that the record-keeping activities which we have discussed are not psychometrically sophisticated. However, they are a movement toward more accountability within Learning Assistance Centers. They are certainly better than the informal evaluations based on opinion and intuition which unfortunately seem to be more representative of evaluations in this area. O'Hare and Lasser, in a recently published monograph: *Evaluating Pupil Personnel Programs* (22:20-21), conceptualize evaluation and evaluative research on a continuum (Fig. 1).

Figure 1
Program Evaluation–Research Continuum (22:21)


Informal Evaluations Based on Opinion, Intuition
Data Counting, Administrative Reporting Environmental Characteristics
Statement of Observable Behavioral Outcomes–Subjective Evaluation of Outcome Attainment
Statement of Observable Behavioral Outcomes–Criterion Referenced Assessment of Outcome Attainment
Longitudinal Studies–Criterion-Referenced Assessment of Outcome Attainment
Evaluative Research (e.g., National Study of Guidance and Studies Relating Environment, Pupil and Behavior Change)

The least sophisticated level of program evaluation would be informal evaluations based on opinion and intuition. This level is succeeded by a level represented by data collecting, administrative reporting, and reporting environmental characteristics such as physical facilities or counseling techniques used. The gathering of sensor data which we outlined above falls at this level. The other extreme of the continuum is represented by evaluative research–designs which attempt to relate environment, pupil, and behavior change. Philosophically and theoretically many persons involved with learning have already reached this most sophisticated level of evaluation. John A. Wood and Anne Marie Bernazz Haaze, in an article published in the *Twenty-First Yearbook of the National Reading Conference*, broached this subject when they stated that:

> Instructional methods as well as educational environment differ and these differences interact with personal variables of the learner to either facilitate or inhibit learning . . . Insufficient attention has been paid to specific learner characteristics and their effect in specific learning situations. Without this knowledge, attempts at individualized instruction are limited to broad concepts which do little to adjust the educational climate so that it can accommodate specific learner characteristics and maximize learning. Instead of predicting main efforts between treatments, we must begin predicting interactions based on our knowledge of sociological, personalogical and methodological factors that affect learning. (30:161-162)

Thus, there is a felt need for practical suggestions to be made regarding assessment and evaluation of what Leland Kaiser labels "the eco-system." (28) We need, as Learning Assistance practitioners and directors, to go one step beyond implementation of just a systems approach and to begin thinking and acting in terms of an ecological systems approach.

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THE USE OF BEHAVIORAL CONTRACTS IN A VOLUNTARILY ATTENDED READING AND STUDY SKILLS PROGRAM

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INTRODUCTION

Experienced reading and study skills instructors are familiar with the fact that voluntarily attended programs are frequently characterized by poor attendance and ultimate attrition. Spache (12), among others, draws attention to these problems.

Students who sign up for voluntary reading and study skills programs are evincing a degree of initial motivation. In many cases they know that they "need" the extra instruction. This is especially true when the programs are developmental or corrective in nature. Cognitively and behaviorally, such students know that they "need the content" but past association with similar experiences has proven to be aversive. The content is not enjoyable, and they need to be motivated to continue with the program long enough to overcome this aversiveness.

BEHAVIORAL CONTRACTS

Behavioral contracts are very simple in nature: "I'll tell you what I'll do for you if you will tell me what you will do for me." Very important is the point that the student is made aware of what he can expect from his instructor and what he must do to improve his own behavior. This has an effect on the instructor, as well. The results, according to our experience, appear to be a great change in attitude of the instructor and the student toward positive motivated change. Generally, behavioral contracts are a change technique to get the student to approach reading and studying with a positive attitude, setting the contingencies for developing and maintaining approach behaviors to reading and study skills classes, or to reading and studying activities related to other educational endeavors. The main advantage of contracts is that the student is aware of his responsibility in changing his behavior and knows the instructor will help him in his attempt to change.

Behavioral contracts were first introduced into The University of Calgary's Reading and Study Skills Program in the fall of 1970. Since 1970, we have modified our approach in using contracts, as well as investigating the effects of behavioral contracts in decreasing attrition rates in our program, which is voluntary in nature.

We have used two types of contracts in our program and have used combinations of these two approaches to behavioral contracts.

General Commitment Contracts

The first type of contract which has been used in our Reading and Study Skills Program (RSSP) is a general commitment contract (4). A sample contract is shown in Table 1. The first paragraph is a contingency agreement of attendance and performance in return for service. The following sentences outline the performance rules more explicitly. The third paragraph is used as a motivational statement and makes salient the limited access to the program and the consequences it has on other students who were not allowed to enter the program due to limited space. The contract is aimed at getting the student to be decisive about enrolling in and completing the program.

Specific Behavior Contracts

Recently, we have begun to use general commitment contracts in conjunction with a second type of contract–specific behavior contracts. A sample of a specific behavior contract is shown in Table 2. This contract was used with a student who had very high academic abilities, but was on the verge of academic suspension from The University of Calgary. He came to the counselling services requesting help with his inability to settle down and study. He reported that he was spending most of his time with his fiancee. With his permission we enlisted the help of his fiancee who was considered a very potent reinforcer at this time. He finished the university year with 3 *A*'s, 1 *A*+, and 1 *B.* Aside from this student's obvious success his fiancee reported that her grades had increased noticeably.

Others, including Sulzer (13), Krumboltz (5), Jones (4), Watson and Tharp (16), and Wark (15), have suggested and demonstrated that behavioral contracts can be used to effectively self-control behavior in the sense that clients "under contract" more consistently complete commitments they have made to themselves, as well as to their instructors and counsellors.

Behavioral contracts can be an effective method for helping students reach desired behavioral goals.

Behavior Contracts: Planned Intervention Methodology

The conceptual basis for developing behavioral contracts revolves around four behavioral components of self-management (1). These components are self-assessment, self-recording, self-determination of reinforcers, and self-administration of reinforcers (3).

TABLE I

Sample of a General Commitment Contract
Student Counselling Services
(Reading Program Contract)

I, ________________________, do hereby enter into the following agreement with ________________________ of the Student Counselling Services, The University of Calgary. I will perform the behaviors stated below under all circumstances. In return I will receive such benefits as stipulated below. If any part is held in violation of the contract then the other party may no longer be held by the terms of this contract.

I agree to perform the following:

1. I will attend the Rapid Reading Program for five weeks, one hour on ____________ at ________ and one hour on ____________ at ________ which totals two hours per week. The total is ten seminar hours for the program.
2. I will perform out of seminar assignments as given, and present them at the appropriate time. These assignments will involve no more than two hours per week for five weeks.
3. I will notify the Coordinator of the Rapid Reading Program if I feel I am not progressing well in the program.

If the specified behaviors are performed appropriately I will receive:

a. diagnostic testing of reading skills
b. interpretation of said tests
c. use of the Reading and Study Skills Laboratory and Library
d. individual counselling when needed as regards progress in the reading program
e. a guarantee of a seat in the reading program for this session

I understand that, since the program has a limited number of seats, my failure to live up to the terms of this agreement results in my having deprived a fellow-student of the opportunity to benefit from the program. Consequently, any breach of the contract, on my part is a basis for my exclusion from the program. On the other hand, any breach of the contract by the representative of the reading program should be reported directly to the Chief Counsellor of the Student Counselling Services, for reparative action.

This contract will commence on ____________ and will be in effect until ____________, unless a new contract supersedes this one.

We hereby agree to honor this contract.

____
Student

____
Program Representative

____
Date

TABLE II

Sample of a Specific Behavior Contract
Student Counselling Services Behavior Contract

Name *John Doe* Date *March 1973*

Target Behavior:
1. Increase amount of time spent studying to a total of 11 hours of study per week.
2. Maintain or increase 11 hours of study time per week. (External Target Criterion: 3 *A*'s and 2 *B*'s)

Contingency:

This contract will allow *John* to see *Jane* according to the following reward schedule of so many minutes study time for so many minutes visitation.

Schedule as follows:

Week	Study	Visitation
First	30 min.	60 min.
Second	45 min.	60 min.
Third plus	60 min.	60 min.

Jane will determine how long *John* can visit when he presents her his data card with amount of study hours completed up to that particular time. The penalty for no study time logged will be no visitation privileges.

Signed____________________

____

____
Counsellor

First, the student examines his behavior and decides on what changes in reading and study behaviors are desired. At this point the student may request the help of a resource person, the instructor, for diagnostic help. Together, they may decide that certain data bases should be probed (9). Second, the student objectively assesses his behavior with diagnostic tests or self-recording devices. Third, the student determines a reinforcement menu that can consist of high frequency behaviors or natural reinforcers. The amounts of reinforcers to be dispensed are also determined. Finally, a behavioral contract is written which sets forth the plan for behavioral change and the self-administration of reinforcers.

To be most effective a behavioral contract should be written out. The visibility of the written document, in duplicate, has a decided motivational effect on an individual (16). The written document increases the probability that the student will carry out the agreement he has made with himself and his resource person.

Research Program Using Behavioral Contracts

The authors have been evaluating the efficacy of behavioral contracts through a research program conducted with the University of Calgary's Reading and Study Skills Program. We have used levels of contracts and types of contracts as variables in various research designs, with the view of determining if contracts could be used to decrease attrition rate in a voluntarily attended program. Birdwell (2) has shown that general commitment contracts were instrumental in significantly decreasing attrition rates. These results may have been confounded as a result of a short counselling interview which was held with each individual before he signed a contract. A follow-up study, which is to be presented for publication, controlled for this effect. The results were essentially the same as Birdwell's previous study. Attrition rates decreased significantly when students signed general commitment contracts.

More recently, data have been gathered to test the effects of obtaining contracts in small groups, as well as establishing new baseline data for various times of the year to compare chronological influences on attrition rates. An inspection of these preliminary results suggests that signing general commitment contracts in small groups of six to ten persons is more efficacious and economical than using individual sessions to obtain contracts.

Our most recent interests have been directed towards relating gains in the RSSP with the influence of individualized programs outlined in the form of behavioral contracts. We want students to be amply rewarded for their efforts. Further, we would like to develop some measuring device or mode of analysis which would help us to quickly determine rewards, or reinforcers, which are available in the student's environment. This may help us to be more effective in teaching students in our program.

Advantages and Disadvantages of Using Behavior Contracts

There are advantages and disadvantages associated with different psychological change methodologies and this is particularly true for behavioral contract systems. Some advantages are as follows:

1. A behavioral contract provides a set of rules for accelerating or decelerating particular behaviors (16; 17).
2. Stating the goals and rules for change can become motivational procedures in themselves.
3. The contract places the onus for change on the student.
4. The contract is a visible document which may prove valuable when moments of weakness intrude.
5. The contract can set time limits, so that a student can determine if progress is being made. Feedback about progress can become a motivating stimulus for the student.

On the other hand behavioral contracts may be ineffective because:

1. A student must want to change a behavior(s) that is considered a behavioral deficit or excess.
2. The instructor cannot make a student honor the contract.
3. The instructor has a limited set of rewards and punishments which can be used with a student.
4. The contract may be too demanding because of inappropriate programming and sequencing of the change in behavior.
5. The contingency arrangement of the contract may be unrealistic or impotent.
6. The target behavior, or goal, may not be explicit or it may be unrealistic.
7. The contract was coerced or imposed on an individual, instead of the individual electing to use a contract to help change his/her behavior.

On the surface there may appear to be more disadvantages to behavioral contracts than there are advantages, but the authors' combined experiences and research data support behavioral contracts as a practical and effective method of decreasing attrition rates in voluntarily attended classes. Furthermore, they have helped effect changes in students' behaviors that have paid off in educational gains and grades for the students.

In return, we have enjoyed the rewards of students returning to tell us about their successes. Also, we have enjoyed the support students have given to the RSSP with the referral of other students to the program. When general commitment contracts were combined with specific behavior contracts in the Study Skills portion of our program this spring we enjoyed a 96 percent completion rate. The numbers only tell part of the success; our satisfied students tell the rest.

SUMMARY

Attrition rates in voluntarily attended programs can be decreased through the judicious use of general commitment and specific behavioral contracts. The results of a research program conducted at The University of Calgary indicate that completion rates for voluntarily attended programs at that institution were above 83 percent when behavioral contracts were in effect.

There are advantages and disadvantages to the use of behavioral contracts, but the positive effects they have outweigh any disadvantages associated with contracts.

The methodology of behavioral contracts makes use of four behavioral components: self-assessment, self-recording, self-determination of rewards, and self-administration of reinforcers.

The rewards for using behavioral contracts extends, not only to students involved in programs, but to instructors and counsellors as well. Everyone gets a piece of the "behavioral contracts reward cake."

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"TAKE IT TO 'EM" – OR – OUTREACH PROGRAMMING FOR COLLEGE READING/STUDY CENTERS

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Justifying transition to outreach programming for college reading/study centers necessitates an initial summary (for comparative purposes) of the evolution of more traditional in-house services in our U.T.-Austin reading lab.

CENTRAL, IN-HOUSE PROGRAMS

U.T.-Austin is a typical, sprawling state university which expanded rapidly during the past decade and has now begun to stabilize at an enrollment of 40,000. One of the major student service agencies within the Division of Student Affairs is the Counseling-Psychological Services Center; and, in turn, one of the major programs budgeted through the Counseling Center is "RASSL," the Reading and Study Skills Lab. However, both the counseling and reading/study skills programs have developed in such directions that the two services now have almost totally separate program visibilities and clientele.

Until the last few years, RASSL's resources were largely expended just keeping its in-house programs updated, relevant, and abreast of the burgeoning student population. Essentially, four such programs evolved, all being tuition-free, voluntary, and non-credit: (1) *Classes* were divided into one-month curriculum "modules:" Study Techniques, Vocabulary, Comprehension, Speed Flexibility, and Speed Reading. All five modules are offered at monthly intervals throughout the academic year so that students can combine whatever modules they choose up to a maximum of three per semester. (2) *Self-Help* alternatives for individualized instruction in 23 topics were made available when additional space permitted the development of self-instructional facilities. Students who elect a Self-Help approach may choose to work on a totally independent basis or under the periodic guidance of a RASSL instructor. (3) *Focus Groups* are informal discussion groups which meet only once and are designed for students who wish to focus upon limited aspects of reading or study techniques. Popular topics for regularly scheduled Focus Groups include Concentration, Preparation for Graduate Entrance Exams, Memory, and Attacking Unread Material. (4) *Cram Clinic* was a separately publicized one-to-one conference service toward the end of each semester for students concerned about final exams.

STUDENT DATA

As these central programs were developed and refined, student participation in them tripled over the past five years, reaching a total of 3100 students last year. These RASSL students represent a cross-section of the campus population: 26% freshmen, 17% sophomores, 18% juniors, 17% seniors, 16% graduate students, and 2% faculty/staff.

When asked their primary reasons for enrolling in RASSL programs, 40% indicated they were doing OK academically but hoped RASSL work would make their studies easier and more efficient; 19% were primarily intent upon developing skills related to various sub-tests of graduate entrance exams; and 17% were just seeking self-improvement not particularly related to academic work. Only 15% sought enrollment in RASSL programs because they weren't doing well academically and hoped to improve their grades.

A recent campus-wide sampling survey revealed that 94% of U.T.-Austin students were aware of RASSL programs, 84% felt RASSL has a favorable image on the campus (another 14% were neutral on that query), and 78% indicated they would participate in RASSL programs if they felt the need.

WHY REACH OUT?

With an obviously good thing going, then, why should RASSL programming be turned in different directions? First of all, is the obligation to attempt reaching typical "non-RASSL" students–those who know about RASSL in-house programs, think favorably of them, and yet do not come to enroll in these central programs for various reasons. If relevant reading and study skills instruction can be provided to all students where they are actually learning and as they need it, the essential requisite of student convenience would best be met. No matter how diversified, individualized, and flexible our current in-house programming may be, greatest student convenience is served by our taking our services to them rather than waiting for them to come to us. The need for this approach is further reinforced on our own campus by geographical realities–i.e., the 16 U.T. undergraduate colleges, graduate and professional schools in Austin spread over more than 300 acres; RASSL's offices and labs are located at the southern edge of that complex on what is only one of several mainstreams of student traffic.

In addition is the problem of ratio between students and reading specialists on campus (7,000 to 1 at U.T.-Austin) and the consequent consideration of how best to utilize those staff resources for maximum student contact. How often I've heard the maxim "every teacher a teacher of reading" and skeptically mused about its application among the independent and multi-faceted personalities who comprise university faculties. And yet, when college reading specialists are limited to traditional dispensation of clinical tutoring, class instruction, or student guidance in self-paced programs, there is an ultimate limit to the number of students they can directly instruct. How much better if preventive medicine and first aid could be practiced in the field by those who teach and tutor students in their regular academic courses.

Finally, the subtle politics of administration must be considered. The increased quality of RASSL programming during the last decade has been in direct proportion to increased financial support resulting from maximizing student contacts (and positive student feedback). However, as the campus enrollment has stabilized the last couple of years, so the proportionate growth rate of RASSL's traditional programs has begun to level off. If quantity increases visibility, if visibility increases funding, and if competition for funding in student services programs is increasingly vigorous, then ways must be sought to further maximize student contacts even as campus enrollments stabilize. Also, the easier it is for influential deans and faculty to see direct and specific relevance of RASSL programs to their unique disciplines, the easier it is to secure their support during various budget crises.

OUTREACH PROGRAMS

The transition to outreach programming began gradually and almost unintentionally several years ago, but only achieved staff recognition as an important, separate program thrust after a tape-recorded brainstorming session held in the spring of 1971. As a result of that session, the need for outreach services as clearly defined and unique programs was evident. The following directions have now emerged in the last two years and are still in the process of refinement and solidification:

Faculty Services were designed to extend immediately relevant reading and study skills instruction into university classrooms to reach students who would not normally involve themselves in more time-consuming RASSL instructional programs. Options ranging from informal consultation to direct classroom presentations are now offered to all U.T.-Austin faculty members and teaching assistants. As a result, RASSL staff activities have ranged from teaching an Accounting class how to study its text and helping Costume History students memorize visual details to discussing with German classes how to study a foreign language. Faculty members and teaching assistants have also consulted individually with RASSL instructors about problems such as ways to diagnose students' exam difficulties and the appropriate nature of supplementary reading lists for their courses.

Special Classes have been tailored to the curriculum requirements of specific academic groups which elected to co-sponsor reading/study skills instruction for their homogeneous membership. For instance, special classes have now been taught by RASSL instructors for the U.T. Law School, the L.B.J. School of Public Affairs, MBA candidates in the College of Business Administration, and a Teacher Corps group in the College of Education.

Co-sponsored Focus Groups on limited topics of immediate interest have been conducted around the campus for Student Union groups, fraternities and sororities, and campus dormitories. Student organizations at the Law School have requested RASSL Focus Groups as part of their instructional series to help minority students prepare for the Law School Admissions Test. The faculty advisor to pre-med students on the campus has also co-sponsored a similar RASSL session for students preparing for the Medical College Admissions Test.

New Student Orientation Programs, conducted at weekly intervals during the summer, include slide-illustrated lectures about general study techniques presented to large groups of freshman and transfer students. The series is designed to help ease the transition to university academic life by acquainting students with efficient approaches to textbook study and lecture note-taking and with the realities of student time schedules.

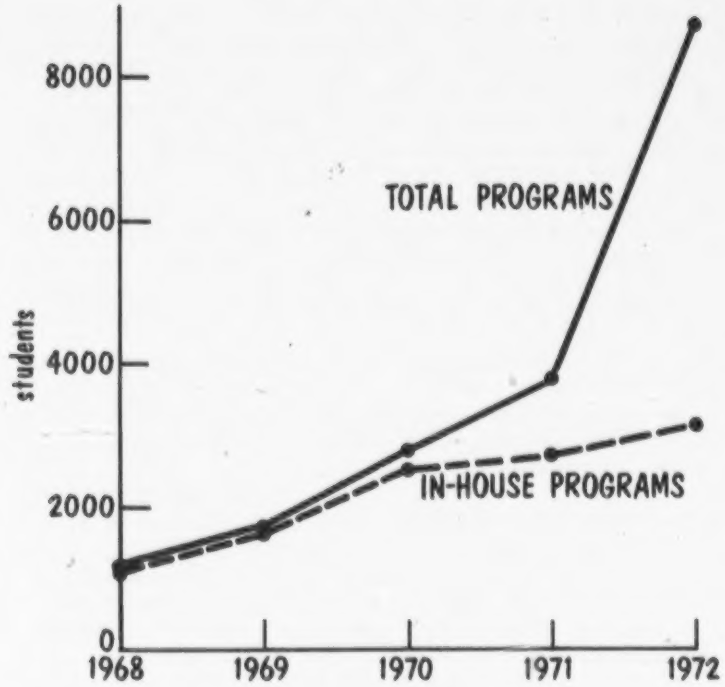
Exam Center, offered with the cooperation of the Undergraduate Library, is a combination exhibit, synchronized slide/tape lecture, and one-to-one conference service which has evolved from the former in-house Cram Clinic. By changing the nature of the service and moving it across campus to the foyer of the library (i.e., to where students were actually studying), student contacts increased from 80 to 1500 per semester. Exam Center has proved so successful that we are now experimenting with a mid-semester "Term Paper Lab" in the same library foyer.

The graph below indicates the impact of these outreach programs on RASSL's total student contacts per year. As in-house programs were beginning to level off after five years of rapid growth, the additional dimensions of outreach services have more than doubled RASSL's student contacts during the past two years—and yielded an eight-fold increase over the past five years.

IMPLICATIONS, COMPLICATIONS, REFLECTIONS

I am certain now that outreach programming is one of the most effective and appropriate ways for college reading/study centers to deliver student services—particularly on very large campuses. Transition to such programming has dramatically increased our U.T.-Austin RASSL student contacts in the last few years; and, if for no other reason, that is at least important from the standpoint of maintaining administrative support.

However, there are the inevitable concomitants which must be considered. As the range of RASSL services reaches out across the campus, participation in the more traditional, in-house programs is leveling off and will probably decrease. While part of this decrease may be attributed to the stabilizing campus enrollment, there is another reason more directly related



FIVE YEAR GROWTH

to the outreach transition. As relevant study techniques are taught through outreach programs, fewer students have need to enroll in traditional programs. Take for example one student who's having trouble with lecture notes in his Architectural Engineering course. His professor might formerly have referred him to the RASSL office for a general Study Techniques class—or, later, for Self-Help note-taking work as that became a more specific option. Now, however, a RASSL instructor has appeared in his Architectural Engineering class at the request of his professor to discuss note-taking tips unique to the requirements of that course. That student—and innumerable others like him—may never need to participate in RASSL's in-house programs.

That, in turn, complicates the process of evaluation—increasingly important in this new era of accountability. When student instructional programs are confined to fairly structured, in-house ones, it's easy to obtain and quote demographic data, student evaluations, pre/post-test results, and teaching load formulas typically required for annual reports to justify a service agency's existence. But when staff resources are increasingly expended in a multiplicity of unique outreach activities, standard evaluation techniques become not only impractical but largely irrelevant. The task of evaluating the total impact of outreach programs on the student population is a difficult one. We have no good answers at the moment—other than routinely requesting feedback from faculty members and groups who have co-sponsored our efforts and scrupulously tallying the total numbers of students and faculty members who have been reached through these services. In some ways, we might say that the decreasing enrollment in RASSL in-house programs is one proof that the preventive medicine aspects of outreach endeavors are working, but it may take particularly far-sighted administrators to see it that way during budget-hacking season. So far, we have been blessed with such administrative support.

Other complications result from the inevitable frustrations and communication problems in attempting to work primarily through other people and departments rather than just doing it ourselves. Enthusiasm about ultimate advantages and goals can be easily tempered by innumerable phone calls, meetings, and memos.

In addition, the roles and responsibilities of the professional staff have changed drastically. Typical RASSL staff members now must be much more than just teachers with fairly stable and well-defined job responsibilities. Their roles have increasingly shifted away from formal instruction toward more flexible and extemporaneous delivery of student services. All staff members are now called upon to be patient and innovative program developers, assertive but diplomatic consultants, organizers and promoters as well as teachers, counselors, and multi-disciplinary scholars.

The adaptation of our own staff to the demands of these new roles has been facilitated by transition to an administrative system involving shared goal-setting and decision-making—and consequently shared accountability. After appropriate directions for major program thrusts are determined by the staff as a group, each individual determines the extent of his own involvement in each sub-program according to his own particular interests and talents—and, admittedly, according to his own conscience when the group acknowledges that less attractive tasks must be performed.

In essence, we're still in a period of transition. At the moment, we've reached a fairly close balance between our in-house and outreach programs. To what extent the expenditure of staff resources on outreach efforts should begin to outweigh the other, I'm not sure. I've recently heard a university administrator remark that the best college counseling center might be one which devoted so much staff energy to effective outreach efforts promoting general campus mental health that the center, itself, never saw another in-house client. Who knows? I wonder if we'll decide the same should be a goal for college reading/study centers as well.

A CRITICAL REVIEW OF THE RESEARCH IN TEACHING VOCABULARY TO SECONDARY STUDENTS

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The large number of deficiencies noted in the research and the way it was reported causes this review of the studies in teaching vocabulary to seem extremely negative and critical. However, this writer hastens to defend the position that only by a critical look at the present knowledge in a given area can one determine the direction and focus necessary for future activities.

Although the studies investigated yielded little defensible information, they did show that vocabulary can be taught, that some teaching effort causes students to learn vocabulary more successfully than does no teaching effort, that any attention to vocabulary development is better than none. Also there was good indication that having students read widely did not increase their vocabularies unless it was combined with some other teaching effort. The studies did *not* show that a direct method was better than an indirect one, that a deductive approach was better than an inductive one, nor did they resolve any of the other possible dichotomies in pedagogical procedures. In fact, there is a suggestion that comparisons of methods may not be profitable because of the possibility that the skills needed for learning by different methods may be so lacking in similarity that they are not comparable. There appears to be some indication also that the appropriateness of a particular teaching procedure may vary with the purpose for which the vocabulary was taught. (13) It is generally assumed that one acquires at least four types of vocabulary–listening, reading, writing, and speaking–and that these words can be broken into classes of general, specialized, or technical terms. It is further assumed that, given a certain degree of overlap, there are differences between and among these categories which conceivably would affect the observations and conclusions the researcher would make. Perhaps until we know more about these differences, it may not be appropriate to generalize from one category to the other.

EVALUATION OF THE STUDIES

Each study was examined carefully as to the soundness of the research design and the underlying linquistic assumptions.

In an effort to establish a criterion for the quality of the research, attention was given to the accuracy of the statement of the hypotheses in relation to what was actually done; to the carefulness with which terms were defined and how they were later used; to the delimiting and isolating of variables; to the reliability and validity of the instruments used to measure learning resulting from the teaching; to the suitability of the population and sample; to the appropriateness of other factors, such as the definitiveness of procedures and the relationship of the time devoted to the study; to the applicability of the procedures used in analyzing the data; and to the manner of reporting the results and conclusions, and the relationship of these to the stated intent of the study. (13).

Inappropriate Research Design

Even though we recognize that educational research always represents a compromise between what is desirable and that which is logistically practical to control, expediency is not a justification for a weak design. (6) Some of the primary weaknesses were as follows:

1. *Defining the Terms.* The failure of some studies to clarify and define their use of such terms as "vocabulary," "concepts," and "knows" complicates one's understanding of the research. Of the studies reviewed only one, (3) indicated what the subject would do to evidence his knowledge of the word.
2. *Selecting the Sample.* Some studies did not indicate how they selected the sample. And still, others did not describe the population nor state the size of the sample. Whether the subjects were selected by randomization, matched pairs, or intact groups was not clearly stated. Many studies used a very small sample size, often with a restricted range as in the use of a remedial class. The results of such a study would not only be indefensible research evidence but it could serve to cloud the issue by encouraging the continued practice of methods that do not work and possibly negating the desire to look for the better methods.
3. *Stating the Hypothesis.* The hypothesis, if stated at all, was often vague and general. And in some studies the hypothesis seemed to have little or no relationship to the conclusions reported. Many studies reported findings which were not accounted for in the hypotheses. A common example of this was the conclusion that the students liked method "x" better than method "y" even though no attitudinal measures were included in the research design.
4. *Clarifying and Delimiting the Variables.* The purpose of some of the studies was not clear. They failed to describe the methods, materials and procedures in such a way that one reading the report could tell what actually happened in the study. Such terms as "traditional," "programmed," and "individualized instruction" were used to describe teaching methods as if they had a clearly defined and universal meaning in education.

5. *Attempting to Measure Gain.* Raw score difference on the pre and post administration of standardized tests was the most commonly used method of assessment of gain. The accuracy of the measuring instrument was seldom mentioned; also, its validity and reliability were not usually included in the research report. Only one study (2) indicated that the measuring equipment might not possess enough content validity to yield a measure of vocabulary growth.

The use of standardized tests to measure gain presents a number of problems. (31) First of all, standardized tests measure our teaching of vocabulary only by accident; at best they sample only *one* of the many definitions of a given word. (19) Most standardized tests, in actuality, measure a reading strategy more akin to a specialized skimming technique than vocabulary. In fact, as Davis (14) pointed out, one might do well on a hundred item test and a time limit of ten minutes just to mark the answers as rapidly as possible without reading the items at all. A test designed to measure vocabulary (comprehension of words) or comprehension of paragraphs should be essentially untimed.

The studies reviewed did not correct for guessing or for regression to the means. Only a few of them used standard scores.

Finally, another reason for questioning the advisability of using such tests in short research studies is that, by definition, standardized tests are both reliable and valid and therefore not subject to change readily as a result of a brief instructional program. (31) One should not expect gain over a one-semester period in a normal teaching/learning experience because of the vast number of words one could be learning. In fact, what we do measure and often refer to as gain in vocabulary is more likely to be a reading strategy, ability to guess, or regression to the means.

6. *Determining the Length of the Study.* Surely retention is one of the primary goals of any improvement program in vocabulary and yet some studies lasted only six weeks; some ran as few as six to ten days. (13) One study (8) reviewed mentioned a "sleeper-test" which seemed to be some measure of retention. The test was not described nor was the date of its administration given. This particular study ran a total of four weeks.

Inappropriate Linguistic Assumptions

According to McDonald (32):

> ". . . many statements, principles and procedural plans concerning the nature of vocabulary and its development embody linguistic fallacies. Some of the more important of these fallacies are:
>
> 1. A word is an entity with a fixed meaning.
> 2. A student either "knows" a word or he doesn't.
> 3. Speakers and writers have virtually complete freedom in selecting the words they use in connected speech or writing.

4. Every word in the language has an equal chance of getting into a broad enough sample of written or spoken language.
5. The frequency of a word's usage in general writing equates with the number of its meanings and with its conceptual importance in the language.
6. The reader must understand the meaning of every word he encounters.
7. Sixty percent of English vocabulary comes from Latin and Greek.
8. A student who has had attention called to certain common "roots" and affixes will more readily understand the meaning of unknown words.
9. Because the most common prefixes and roots are readily distinguished and used (and on the basis of (8) above), teaching common roots and affixes is an extremely efficient way of building vocabulary.
10. Wide reading is a sure and pleasant way to build vocabulary.
11. For the college student, pronouncing an unknown word is usually helpful in ascertaining its meaning."

Perhaps most instructors at one time or another have tried to teach vocabulary using one or more of these fallacies. It is easy to be critical and often difficult to offer solutions or suggestions for improving the situation. The greatest fallacy of all seems to be relying too heavily on a given method. Knowing what, when, and how to teach any skill requires much expertise, experience, and judgment. And it is in that same decision-making process that students need to develop skill and confidence. One method which profitably utilizes that concept encourages students to select the words they "want to know." Another idea suggested by Wallen (47), Duffy and Sherman (20), and implemented by Schoenbeck (37) is separating the teaching of vocabulary from the teaching of concepts.

SUGGESTIONS FOR IMPROVING RESEARCH

The first step to improve research in vocabulary is to specify the objectives of the study. If the purpose of a training program is to increase a student's strategies for learning new words then the number of strategies learned must become the criterion for the evaluation of the effectiveness of the training rather than sampling the number of words known.

Another strategy for measuring is to test to see how many words a subject can supply a synonym for and use correctly in a sentence. In any case the tasks provided by the measurement instrument should be "job samples" of the objectives, (i.e., criterion-reference testing.) Implementation of this idea alone would avoid many of the pitfalls permeating educational research.

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SPONSORSHIP OF IN-SERVICE TRAINING OF INSTRUCTORS PARTICIPATING IN PILOT PROGRAM ENTITLED "SELF ADVANCEMENT FOR DEVELOPMENTALLY DISABLED ADULTS"

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BACKGROUND AND PURPOSE

The program entitled "Self Advancement for Developmentally Disabled Adults via Reading Instruction" was developed as an adjunct to the Community Counselor Program (formerly Foster Grandparents Program) and was functional from April, 1972 to December, 1972 at the Red Rocks Campus, Community College of Denver, the sponsoring agency for the grant. It was funded by the Adult Vocational Division of the Department of Health, Education and Welfare, and reimbursement was made to the Colorado Department of Education.

It had been determined that there exists a large population over sixteen years of age who, for many reasons, has been classified as "developmentally disabled" and who has not been permitted to perform at the highest level of its capability. For purposes of this report, a "developmentally disabled" person is defined as one tested and evaluated by a referring agency and/or advisory personnel to have an I.Q. near or below 75 and to have a handicap that prevents him or her from functioning at a normative mental or physical level.

Potential students were to include those living and working in the community and attempting to maintain themselves in an independent living situation, those participating in a sheltered workshop program or some form of structured work-activities, and those who were not employed but for whom the instruction could result in a heightened self-concept.

Although the program was primarily aimed at providing reading instruction, it was decided, as the project progressed, to remove "via reading instruction" from the proposal title and replace it with something that would give a broader emphasis on communication and socialization skills, which in many of the client's cases were extremely limited or completely lacking. It was hoped that growth would occur in areas such as improvement of self-concept, possible transition from a sheltered workshop to a more independent job situation, more adequate socialization and increased community awareness and adjustment.

METHODOLOGY

Clientele

Many of the clients, whose ages ranged from 16 to 42, had spent their lives in traditional special education programs; some had spent many years in mental institutions for varying behavioral disorders. Some of the clients had a history characterized by little understanding among their family members of the concept of mental retardation; consequently, they had been given little opportunity to explore their potential in many areas.

Centers and number of students initially involved in this program included:

Hope Center for the Retarded–9
Avatrac Center (sheltered)–8
Jefferson County Workshop (sheltered)–7
Garfield House (half-way house set up by Ridge Home)–5
Community Counselors Program (all having varied living and work situations)–11

Finding the Instructor

The program had hoped to utilize the services of skilled instructors with some experience in the areas of adult and special education. Age was not a factor; mature (55 years of age and over) and youthful applicants were considered alike. Graduate students of education with proper recommendations were also considered as instructors. Basically, the program was searching for teachers who were not structured in their approach to learning, who would be flexible and innovative in an instructional approach, who would have the ability to develop rapport with others and who would be able to plan their own program and individualize instruction. Supervisors of the in-service training were aware that hiring had to be flexible enough to include instructors who would be compatible with the operation and philosophy of existing institutions.

The proposed maximum case load was approximately 45 individuals, making it necessary to employ six part-time instructors, each being responsible for as many as eight students. Clients were served within the range of small class settings (maximum of four) on a one-to-one basis, dependent upon the functioning level of the individual student and his varied work and living situation. Instructors furnished their own transportation either to the centers or to the living situations at a prearranged time.

In-Service Training

Instructors met with the coordinating supervisors from Red Rocks Campus, liaisons from the Community Counselors program (including foster grandparents assigned to the individual clients) and other interested parties in a weekly in-service training workshop generally held two to three hours in the evening. Of primary concern was the instructors' ability to work with adults and to understand the various learning processes involved. It was felt that participants in this in-service training must be well acquainted with the average adult learner's needs. One way to accomplish this was to introduce instructors to the learning center on Red Rocks Campus and provide them with the opportunity to observe adults receiving diagnosis and prescription for improvement in basic skill areas.

Initial discussion concentrated on the concept that learning is intersensory and remediation would be dependent upon multi-sensory presentations to the individual client. Instructors were urged to focus on the client's personal experience and to select audio, visual, tactual and kinesthetic learning materials (made available by the program) which could reinforce and stimulate. The Picture Story technique was introduced as one way of establishing communication with and diagnosing needs of a new student. Diagnostic techniques were discussed, along with special diagnostic and prescriptive forms which were tailored for this pilot program. The instructor was urged to look for factors–physical, environmental or psychological, which would help in the selection of the appropriate type of remedial program for the client. Instructors also understood the need for establishing and developing a warm, confident relationship with the client before actually starting with a specific learning task.

Group discussions centered on the sharing of experiences, what techniques were effective or ineffective, what obstacles took place in the communication process between the instructor and client and any other factors which the in-service participant felt were important.

Specialists in the areas of learning disabilities, reading, psychology and art were brought in as resource consultants. Supervisory visits to the teaching sites were made whenever feasible to facilitate better understanding of the needs of the developmentally disabled clients.

Whenever possible, available and pertinent films in the area of vocational rehabilitation, mental retardation, perception and learning were used with a follow-up discussion. The majority of in-service discussions were tape recorded as an evaluation tool for both the supervisors and participants.

Learning experiences during the summer project involved both teacher and client in special on-campus art workshops and several field trips for selected clients and community college students. Instructors were urged to emphasize the development of specific tasks for those clients whose lack of self-confidence had prevented them from leaving the sheltered workshop and getting better paying and more interesting jobs on the outside. For example, if the particular client needed help in basic counting in order to obtain a job as a maid in a motel, learning to count and sort had to be a specific task to consider in an instructional setting. If the client showed a definite interest in becoming a nurse's aide and demonstrated the capability, the skill approach included involvement in listening skills and following directions.

CONCLUSION AND IMPLICATIONS

Since it was felt that present standardized test results tended to give a lower, false picture of each client's actual capabilities, minimal emphasis was placed upon these in diagnosing and predicting capability. Many of the participating clients had been tested with the Illinois Test of Psycholinguistic Abilities (ITPA) and other intelligence and performance tests. Although the ITPA tests for intraindividual differences (discrepancies in growth within the individual) involve the auditory and visual mobilities, they are more successful with children than with adults. Instructors in this program, under supervision, had to tailor diagnostic materials to each client's needs.

Reevaluation of the program's policy on instructor qualifications proved to be necessary. Originally, "non-professionals" were screened and no certification was necessary. However, by the end of the first quarter it was found that some of the non-professionals in the program needed more experience in teaching and working with normal adults.

Final evaluations from instructors regarding their clients' personal growth were very positive. Growth in socialization was particularly noticeable among the ten clients participating in the two art workshops held on the campus during the summer quarter. This was attributed to the opportunity of putting them into a normal experience without identifying them, for identification might have led to prejudiced expectations in art as well as reading skills. The coordinators came to realize that "reading" must be considered a multiplicity of visual, mental, and physical skills. This wider definition, extending beyond the concept of "the student with a book," encompasses communication in many areas. Unfortunately, government funding was cut and the program was not permitted to continue; however, the success of the Avatrac workshop earned it a continued existence under separate funding. Those involved in the program as a whole agree that this was a beginning step in providing long overdue assistance in the enhancement of self concept and basic skills to this group of people classified as developmentally disabled.

DEVELOPMENT OF A VOCABULARY BUILDING PROGRAM FOR VOCATIONAL EDUCATION STUDENTS

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Each year students in ever increasing numbers are abandoning the old maxim that "In order to make a 'good living' you must have a college degree." These students are instead turning to the vocationally oriented schools that hold the promise of a good job after a relatively short period of training. They are beginning to realize that everyone does not need to have a college degree to live comfortably and respectably. What they may not realize is that everyone must possess the ability to read, and this is where we reading teachers get our cue for action.

Vocational Studies at ENMU–R

The vocational studies program at Eastern New Mexico University–Roswell Campus is a program encompassing a wide range of occupational areas. Training is offered in the areas of auto mechanics, auto body and paint, welding, electronics, aviation maintenance technician, air conditioning and refrigeration, dental assistants, nurses assistants, associate degree nurses, watch repair and jewelry manufacture, and office occupations. With such a wide variety of programs offered, a great dissimilarity of students is expected. Add to this the fact that students are admitted to these programs after meeting a bare minimum of requirements, in most cases a high school diploma is not even needed. This factor attributes to the wide range of reading abilities of the students using the reading center.

In effect, then, a semi open-door policy of admissions is employed. Very few students who apply are turned down. This again means that the variance among the students' reading abilities is quite large. It also presents us with the great challenge of directing the reading of the student in a direction that will be most useful to him in pursuing his chosen vocation.

APPLIED VOCABULARY TRAINING

Applied vocabulary training is a term adapted from McDonald's (5) direct vocabulary building. He says that all students should not work with identical sets of words since weaknesses vary among students. He also points out that words should be studied in context rather than in isolation.

McDonald stresses application of word learning; that is, the word to work for the learner. These ideas are the basis of applied vocabulary training. We have tried to incorporate these principles into the program so that the students might see the usefulness of improving their vocabularies. However, before going into the actual program, let us regress to the beginning of the reading center at ENMU–R.

The reading center at Eastern New Mexico University–Roswell began teaching reading improvement to vocational training students in September of 1972 using the "Reading 300" series published by Educational Developmental Laboratories. In past endeavors, this program had proved to be a sound and successful one. However, it soon became evident that something was missing from this curriculum. It also became clear that the needs of the vocational students in reading were quite different to those of the more academically oriented student, and the "Reading 300" series was more academically than vocationally oriented.

The vocational student is in school for only one reason–to learn a specific trade. Anything that interferes with his acquisition of the knowledge necessary to acquire proficiency in his given vocation is to him a waste of time. This student wants only the "meat" of the curriculum, not the "fat". Reading material not pertinent to his vocation is generally looked upon as not interesting and not worth reading.

These facts, plus other observations, led this writer to believe that the factor of interest in what one is reading was the missing component of the program. Continued use of the "Reading 300" series was needed, but this basic program had to be supplemented with something to catch the interest of the students.

Interest, then, became the key word in the search for supplementary materials. But this interest had to be one conceived by the student not the teacher. Marksheffel (3) has found that when teachers set the student's goals, the student is then relieved of the responsibility of attaining that goal. The responsibility of reaching a certain goal must lie with the student.

In studies conducted by Bond and Tinker (1), much evidence was found to show that students make greater progress in reading when they read materials that are highly interesting to them. This interest breeds motivation; and motivation, of course, is of vital importance in any learning situation. So it became a necessity that materials that were of interest to the students be found, and according to Harris (2), there are two main ways of doing that. First, there is the use of material which is intrinsically capable of attracting and holding the reader's interest. This material, more often than not, will have to be prepared by the teacher. The second method is the use of material that is presented in such a way that it fosters interest. This writer felt that the first of these methods was the better of the two. By employing it, a supplemental program could be designed to meet a more specific or particular student need.

Through formal testing and observation the students had shown that they were having the most difficulty with vocabulary, both technical and general. Their reading vocabularies in both areas were low. Materials such as the EDL *Word Clues* book were helping to improve their general vocabulary, but the instructors in the different departments still felt that their students were not reading and understanding the technical terms with which they had to work.

Before going any further, the two terms "*general*" and "*technical* vocabulary" should be defined. The term *general* vocabulary is used when referring to those terms whose usage falls outside the realm of technical jargon. Words that are not necessarily associated with a specific trade would be considered *general*. Words which apply to a specific trade and are used to describe an act or a piece of equipment in that trade are considered to be of a *technical* nature. Some words can be used in either a general or technical manner. For the purpose of the vocabulary program and this paper, these words shall be considered *technical* because this is the way the students use them.

The area upon which it was decided to concentrate our efforts in writing a vocabulary improvement program was auto mechanics. The textbooks in use there have a readability level of 10th to 11th grade, as measured by the Dale-Chall readability forumla. The average reading level of the auto mechanics students is 8.2, as measured by the *California Achievement Test*, Advanced Battery. The discrepancy between the reading abilities of the students and the readability level of the material in use was great enough to warrant some attention from us.

The basis for this program was the various auto mechanics books in use. The goal toward which the program was aimed was to write the material in such a way that it would, first, arouse the interest of the student; then, through use, it would improve his technical vocabulary. The same format as the *Word Clues* book was followed since this was an approach our students were familiar with, and it had been rather effective in improving their general vocabulary.

All of the words used in this vocabulary program were taken directly from textbooks of the participants. By pointing this fact out to the student, it was felt that he would become acutely aware of the necessity to know what a word means and how it applies to the field of auto mechanics. The student must come to realize that improving his vocabulary and reading can also improve his proficiency as a mechanic. This point of view was also taken by Robinson (6) when he stated that the goal of a reading improvement program should be directly related to the life situation of the student involved.

As the program evolved, it was decided that the applied vocabulary training concept could be expanded to also encompass general terms from the student's textbook. The rational behind this expansion was that if the students were made aware that these general vocabulary terms also came from their manuals, it might increase their incentive to become familiar with the usage of those words.

This aspect of the total program is arranged in two parts, both on audio tape. The first segment is a controlled survey of a chapter with emphasis placed on new words that the student might encounter. The second phase deals with acquainting the student with the various general vocabulary terms found in that chapter. This will be explained in more detail later.

Implementation of the Program.

The applied vocabulary training program is built upon the principle of deriving the meaning of the unfamiliar word through context. By using this method of attack, it is intended that the student will be made aware of the direct relationship between a word and its importance to him as an auto mechanic. As was stated earlier, this program was built on the principle that all students need not work with identical sets of words. Therefore, the areas of concentration have been divided into three parts. The first two segments of the training are not required work for all students. The third portion–technical vocabulary training–is mandatory for everyone.

Phase One. Phase one consists of a controlled survey of the chapter about to be studied. By means of an audio tape; the listener is directed through the chapter with emphasis being placed on chapter headings, subtopic headings, and captions for pictures and idagrams. Special care is given in pointing out general vocabulary terms that may be unfamiliar to the listener. The student is instructed to underline each of these words in an effort to further call his attention to them. Upon completion of this tape–usually 15 to 30 minutes in length–the listener is prepared for phase two of applied vocabulary training.

Phase Two. Phase two is separated into three parts. Part one is a pretest to determine exactly which general vocabulary terms are not known by the student. This, like all materials in applied vocabulary training, is a teacher prepared test. Part two consists of an audio tape dealing with those terms that were found to be new to the student. Along with this tape, an alphabetized work sheet of those terms is prepared. Each work sheet consists of ten words with spaces for the learner to write the word and its dictionary pronounciation. Then by listening to the tape, the student is given the definition of each word and its various usages in a contextual setting. Using the word *competent* as an example, a typical entry would sound like this.

> The foreman must be a highly *competent* mechanic, familiar with and able to perform all jobs that enter his shop. *Competent*–a verb meaning able, sufficient. Another variation of the word is *competency.* It is a noun meaning the ability to be skilled, able, or sufficient. Let's hear the sentence again using *able.* The foreman must be a highly *able* mechanic, familiar with and able to perform all jobs that enter his shop.

During this time directions are also given for the listener to write the word in the spaces provided. In this way the learner is exposed to the word visually, auditorily, and kinesthetically. Hopefully, one of these stimulations, or a combination of them, will enhance the student's retention of the meaning of that word.

Part three of this phase is a post-test covering those words that the student has studied. The pre-test and post-test parts of this phase are felt to be of great importance in helping the instructor better meet the needs of the students. The more defined the student needs are, the better we will be able to meet those needs, and the pre-test, post-test aspects of phase two help considerable in defining those needs.

Let it be reiterated that only those students who have scored below a certain level on a standardized vocabulary test or who have been observed to have difficulty with general vocabulary terms are required to participate in phases one and two. Those students who have shown no difficulty in this area are instructed to begin with phase three.

Phase Three. Phase three of applied vocabulary training deals with building the technical vocabulary of all students. The words to be studied are arranged in an order corresponding to their use in the textbook chapter. A typical entry in this section would appear this way:

ven.tur.i (ven-shər'-e)

1. a. In order to build a simple, basic carburetor, we would begin with an air horn, or a plain round metal tube. We would then modify this air horn by building a *venturi* in it to impede the air flow. Write a definition or synonym.

1. b. As the *venturi* compresses the air, it also speeds up the flow of air thereby increasing the vacuum.
Venturi means:
(a) dam
(b) sediment
(c) restriction
(d) porous mass

1. c. ven.tur.i (ven-shər'-e) n: that part of a tube, channel, pipe, etc., so tapered as to form a smaller or constricted area. A liquid, or a gas, moving through this constricted area will speed up and as it passes the narrowest point, a partial vacuum will be formed.

1. The *venturi* principle is used in the carburetor.
   (a) true
   (b) false
2. The taper of the venturi facing the flow of air is much ________________ than the taper facing away from the flow of air.
   (a) more gradual
   (b) more constricted
   (c) steeper

Part "C" of this entry can be varied to suit the word. For instance, the student could be instructed to pick the words that are synonyms of the word being studied, or they could be required to pick the antonyms. Another variation could be to choose the sentence (sentences) in which the word being studied is used correctly. This variety is important to help combat boredom. Remember, the prime objective of this entire program is to create interest and thus motivate the learner.

This writer is of the opinion that through this kind of program the needs of the students can be better met. However, the "Reading 300" series has not been eliminated. Emphasis is still placed on controlled reading, study skills, and listen and read exercises. McDonald (4) has found that reading programs are very limited in their effectiveness when one aspect, such as rate of reading, is overemphasized. Well-rounded programs usually deliver better results. Our aim in developing applied vocabulary training was not to "cram vocabulary training down the student's throat." The primary purpose of the program was to expand on the existing curriculum in order to meet a more defined student need.

SUMMARY AND CONCLUSIONS

The entire purpose of applied vocabulary training is to allow the reading lab to serve a very real and practical purpose to the student. If reading is going to become a useful tool of the vocational student, it must be tied in as closely as possible to his vocation. It must serve a very real function in his life. Reading is a tool through which one can achieve a certain goal. It is a means to an end, not an end in itself. This fact is of vital importance to those of us teaching reading in a vocational education environment. Vocational education students want only the "meat" of the curriculum, not the "fat." If reading is going to be of any use to these students, a program of instruction must be designed corresponding to their individual needs. If this is not done, then the reading center will be serving no useful purpose.

Interest can be the key to motivating the learner; it is certainly of tremendous importance. Applied vocabulary training is designed to arouse the interest of the students involved. By working with words that the student must deal with everyday, it is intended that he will see the need for learning the meaning of a word and how it relates to his vocation. Because the program is designed to accommodate the student, he becomes responsible for setting his goals and attaining them. The responsibility of the reading teacher is one of helping his students achieve their goals, not setting their goals for them. The student comes first: his needs, his interests, and his problems.

Conclusive results as to the validity of the program are not available at this time. Because the applied vocabulary training program was only started in September of 1972, a comparatively small number of students have been exposed to it. However, those students who have used it appear to have increased their reading abilities; perhaps of more importance, their proficiency as auto mechanics seems to have increased. The instructors in auto mechanics have observed an increase in their students' abilities to work with and understand those terms with which they have worked in the reading lab. Therefore, the transfer of learning from applied vocabulary training to auto mechanics seems to be taking place. One must remember, however, that these conclusions are based on the opinion and observations of this writer and others who are associated with the program. Further time and expansion of the concept is necessary for conclusive results to be obtained.

RECOMMENDATIONS

It is the recommendation of this writer that further research and application of this program be attempted. The principles upon which the program rests seem to be sound. However, only time, use and sophistication of the ideas brought forth in this paper will tell if our efforts are as successful and meaningful as they now appear to be.

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A SYSTEM FOR THE DIAGNOSIS AND TREATMENT OF TEXT STUDY PROBLEMS

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INTRODUCTION

For many years, traditional text study systems, such as outlining, SQ3R, and underlining, have prescribed how students should read texts. Research indicates, however, that the problem is more complex than most "how to study" books (which contain these methods) would indicate.

What appears to be needed today is a system flexible enough for a student to mold it to the unique characteristics of a specific text in any given course. The system described in this paper is designed to help each student attain his own unique course goals.

Text Study Systems Recommended in "How to Study" Books

A survey was made of eighteen books currently in print. All or part of Robinson's SQ3R can be found in every book examined. OK4R, POINT, Triple S, STUDY, EVOKE, the 3 Level Outlining Method, and Statement PIE are some variations which use steps similar to those in SQ3R.

Six authors recommend underlining, mostly explaining what not to do rather than defining the method. Several include underlining as the note-taking part of other systems. Outlining is presented as a system three times, but the focus of content is on the end product with little explanation of the method. Three authors explain summary writing and two illustrate how to take book notes.

Where did these techniques originate? Apparently those recommended are based mostly on expert opinion and tradition, or research prior to 1966.

What the Research Indicates

Several reviews have covered the data prior to the date suggested above (1; 2; 3; 5; 11). Conclusions from these summaries are as follows:

1. The evidence does not support the effectiveness of the popular SQ3R procedure as a total method in changing comprehension, rate, achievement, and interest.
2. SQ3R has been found to be no more effective than any other system.
3. The value of the component parts of SQ3R is generally substantiated.

4. Evidence comparing systems is mostly inclusive with straight reading producing as good results as any other system. One exception in the research is a classic study by Willmore (11). Comparing outlining, SQ3R, underlining, and straight reading, Willmore found underlining best for comprehension and retention, and second only to reading in time commitment. The study was done only on history content and needs to be replicated using other subject areas.
5. Early research on outlining produced positive results, but there has been little done in recent years since the development of good statistical techniques.
6. Underlining has not been found particularly effective except by Willmore.
7. Study systems provided as organizational aids have not affected comprehension.
8. After twenty-five years of research, ineffective methods based on little data are still being used.

Limitations and Implications of the Research

A number of comments can be made concerning limitations:

1. There has been little evaluation of systems in terms of productivity.
2. In most cases, the systems have not been taught to experimental groups, which may be due to the lack of consistent definitions of methods.
3. There has been a lack of application of systems to diverse content areas. Social science and prose material have been most studied.
4. Experimental populations have generally been composed of elementary and high school students rather than college age students for whom the text systems are crucial.
5. Earlier research on which the most used systems are based, was conducted at a time when texts provided fewer study aids and content divisions.
6. The research lacks a consideration of the complexity of individual differences, interest and motivation, variation in course requirements, testing, and text difficulty.
7. There appears to be little or no research on particular systems or comparisons of systems since Willmore's 1966 study.

Implications seem to call for investigation of other systems to get more relevant data. Students do not have enough information on which to base decisions on study methods.

A wave of current research (6; 7; 8) appears to have that needed relevance. These studies, and those referred to in them, focus on factors affecting information acquisition and learned performance. Some examples are: text density (the proportion of sentences in the text relevant to instructional objectives); specificity of instructional objectives and related intentional and incidental learning; mathemagenic activities (student activities relevant to achievement of objectives such as inspection rate and processing related to adjunct questions); and text difficulty and readability.

The basic problems remain. Prescription systems don't place the responsibility for decision-making regarding use of the text on the student. While each system may be particularly useful in some situations, parts of each may need to be combined for others. An assumption seems to exist that a student has the necessary basic comprehension skills to use for steps of any system. This is frequently a fallacy.

A Student-Built System

This system is an attempt to put text study steps recommended by writers and researches in a framework which can be flexibly handled from the student's perspective. It does not assure better text understanding, but attempts to provide an opportunity for the student to identify skills necessary and improve those not up to the standards needed.

The responsibility rests directly on the student to determine where he is and what he needs to know in order to reach the learning and grade goal desired. Success depends on being able to become flexible.

Figure 1 summarizes the recommended procedures to build each unique text system. This framework suggests a sequence of three steps:

1. a diagnosis based on the assessment of variables which will influence the job to be done
2. a selection of appropriate study steps and techniques which will influence the job to be done
3. a study system schedule to implement the program planned.

The remainder of the paper is instruction to the student in the application of each step of the framework.

Figure 1

A System for the Diagnosis and Treatment of Text Study Problems

Diagnostic Variables	Study Steps	Text Study System Schedule
1. Text structure	1. Look	1. Initial contact steps
2. Text usage	2. Leap	2. Ongoing synthesis steps
3. Individual characteristics	3. Locate	3. Review steps
4. Environmental influences	4. List	
5. Time available	5. Link	
6. Purpose for contact	6. Limit	
7. Reading rate for each purpose	7. Look again	

DIAGNOSING THE SITUATION

Assessments of a minimum of seven variables, identified in Figure 1, will help you to plan a text study system for a particular course. The order of presentation does not indicate a priority of importance. The brief discussion of each does not exhaust the analysis. The purpose here is to provide a stimulus to your situational self-diagnosis.

Variable 1 – Text Structure

To assess or to preview is to visually and mentally examine the parts which will make a difference in "how" and "how much" you need to do to attack the text. An exploration will probably include the:

- title, preface and/or introduction to establish the author's aim
- table of contents to get an idea of the structural organization
- glossary for explanation of specific terminology used
- index to determine method of location and weighting of topics
- use of pictures and other graphics for explanation purposes
- kinds of study aids such as subdivided headings, chapter outlines, examples, problems, study questions, chapter summaries, and additional resources
- language used and style used to present

From this you can determine how many "cutting through" measures can be taken. For example, in a photography text, the author provided marginal codings of content. You could use these to shorten study time, to selectively review, to bypass reading if time is prohibitive, or to check your previous knowledge.

Variable 2 – Text Usage

Here you are interested in establishing how the instructor intends the book to be used in the course and by the student. Helpful questions may be:

- is the book covered in the lecture entirely, in part, or not at all? in order?
- how many pages are you expected to read in a given period of time?
- how could you contract these, spacing over time available, to allow for review periods and not too much reading at any one point?
- what is the proportionate coverage of content found in the text for the course total?
- in testing, what is the weighting on book content compared to other sources?
- what kinds of test items will be used to cover the text? essay, multiple choice, etc.
- will the questions deal with generalities or specifics; what kind of knowledge does the instructor expect you to have about the text at the point of testing?

From these answers you can plan your own personal use of the text. For example, if the book is covered in class lecture but not in the book order, you will want to coordinate appropriate reading to class coverage.

Variable 3–Individual Characteristics
Both physiological and psychological factors need to be considered, such as:

- do you have any problems in general health which might affect your ability to read and study the text? i.e. vision
- what time of day and for how long do you function well?
- can you adapt to schedule changes as needed?
- what interest and motivational level do you have for this course and content area?
- what is your purpose as compared to the instructor's in terms of knowledge gained?
- what are your general reading skills like? kinds of comprehension you can handle, rates available for different tasks, etc.
- what are your reading skills in this particular content area related to your background?

This assessment will help to plan the system most efficient in terms of your various strengths and weaknesses. For example, you may not have a good background in the math necessary for the chemistry course you are taking, causing you to build into your system some math review of the relevant material prior to its coverage in the text.

Variable 4–Environmental Influences
Factors related to what study places are available need to be examined, such as:

- where are the places in terms of ease of access and time availability?
- what are the characteristics of each in terms of kind of seating, writing space, lighting, temperature, etc?
- what distractions are there to tempt?

Knowing what you will have to contend with in a given study spot will be important in deciding what study steps you can do there efficiently. This may also suggest adaptations in available environments or the search for new ones. For example, if the library is too cold in the evening when you like to study, you may need to dress warmly or find a warmer night study spot.

Variable 5–Time Available
Not of least importance is an analysis of the time actually available for study. Ask yourself:

- how many hours are actually available daily and weekly after those needed for classes, work, transportation, commitments, and survival needs?
- when are they available? what times of day and distributed in what size blocks?
- what are the minimum and maximum numbers of hours you *would* spend on study?
- how much priority does this course have in your total class load in terms of credits, grade, level of understanding desired, etc?

- how much priority will you give the text in this course compared to other requirements?

From these answers the amount of time to spend specifically on the text can be determined, and with this in mind, the kind and number of study steps can be programmed. For example, if an hour every day is spent on the bus, small text study tasks such as surveying or memorizing terms can be planned appropriate to that setting.

Variable 6–Purpose for Contact
Determine a specific purpose for each contact with the text. Some variations are:

- a survey of what's there and the size of comprehensive units to be handled
- look at unknown terms and possible identification
- a study-type reading from some notes or procedure results, which allows you to check your comprehension of the facts and provides for review later
- a review plan which incorporates a check on factual knowledge, interpretation of that knowledge, and practice in application so that content is retrievable on the test from several points of view.

Deciding what different purposes you need at different points in time will also aid in selecting appropriate study steps. Variation in task attack will help you to promote concentration and reduce boredom from continuous reading. For example, you might read once for general understanding, a second time to pick up details, and a third for the organization of the first two.

Variable 7–Basic Reading Rates for Different Purposes
Having decided what purposes need to be accomplished, you can make a quick check on time output for each. Figure your words per minute ratio for a chapter or some other unit. Look at the rate you use to:

- skim to get the sequence of content
- scan for terms or study questions to direct study reading
- study read on different levels of understanding: general ideas, specifics for testing, or a good idea of the relationships of major and minor points
- review for whatever kind of test has been established

Knowing the respective time units you can effectively schedule yourself. Reality of time deployment hopefully results. For example, you wouldn't plan a study-type reading session intended to unlock the mysteries of a chapter on physics principles in a half hour before class when you know your study rate is roughly two hours per chapter.

After diagnosing the variables, summarize the answers to those questions found relevant to you and your text. You can now determine which study steps will meet your needs. Those chosen will need to be scheduled appropriately for the time available. Now is also the time to make plans to remedy those diagnosed weaknesses in general skills which may prevent you from using any particular step successfully.

At this point, you are ready to program yourself and the text material for more effective learning.

SELECTING THE STUDY STEPS

The seven "L's" listed in Figure 2 are study steps meant to lead to text knowledge, understanding and retention. The listing suggests a sequence, but in reality, you might use any step in any order at any of three time stages. Also, you might elect to use only a few of the steps or all seven depending on your previous "text and self" diagnosis. You thus have flexibility in (1) the variety of techniques you use for any step, (2) the specific steps you select, and (3) the way you combine the techniques and steps at different time stages.

The three time stages also noted in Figure 2 are initial contact and study, synthesis, and review. For example, "Look" can be used as (1) an initial screening attack, (2) a comparative step during synthesis to check for duplication of content in lecture and other material, or (3) a review in the final test preparation step to find memorized facts and dates already marked for possible testing.

Every one of the seven study steps is represented in at least one of the traditional study systems; outlining, SQ3R, and underlining. Figure 3 illustrates the relationship of the seven study steps to traditional terms and techniques used in these three systems. One limitation in making such a comparison is that no consistent definition exists for the outlining and underlining systems such as exists for SQ3R. In application from system to system, the "List" step is the most varied. The different forms of "listing" imply an outline, a series of questions and answers, or some underlining with marginal coding.

In Figure 2, one or two techniques are suggested for each study step at each time stage. As in the diagnosis section, these suggestions are by no means exhaustive and leave the potential for technique ideas to your inventiveness. Almost any "how to study" book will provide suggestions for specific techniques. The intent here is to get you to develop your own program. Remember that no one program of system will work for all texts. Flexibility in attack is needed to adapt to situational and individual needs for each.

Moving through the three time stages from initial study to final review, the seven steps help to develop more understanding of content and relationships, weaving more detail with generalities, yet continuously molding the totality into an integrated whole.

Figure 2

A Seven Study Step Framework

Study Steps	Some Possible Techniques or Activities to Implement the Study Step		
	Time Stages		
	Initial Contact With Text	**Ongoing Synthesis of Content**	**Reviewing–Ongoing and Final Stage**
Look	Survey the text assignment for general ideas, content sequence, terms study aids	Survey everything after each unit of content is complete, structurally organizing and consolidating	Survey the total reading content required, putting emphasis on where started, what covered, where ended; review terms, facts, and overall structure as needed for testing
Leap	Read material with purpose in mind for type of comprehension needed at rate to accomplish–reread sections not understood	Study read sections isolated as underlearned or lacking level of understanding desired	Read summaries if representative of content for testing; read sections still not up to learning par
Locate	Find author's key points; relate to instructor's	Check to see if added new points agree with earlier ones; revise and clarify	Formulate questions over earlier points located
List	Plan system of recording information for check on comprehension and building retention; outline, write questions and answers (SQ3R), underline or any combination of steps which extend the concepts underlying each method	Check over system, adding or subtracting as needed from lecture or supplemental sources	Summarize using some overall technique such as a table, general outline, series of summaries, deck of flashcards or note cards with key concepts–an overview of the universe of knowledge to be covered on the test; code page numbers where information backup can be found

Link	Clarify organization by marking off ideas, using symbols or numbers; add subpoints in contrasting colors for level of specificity such as terms, or dates expected to be found in tests	Continue refining first step editing based on new input from lecture, supplement, or additional text information; synthesize to lecture notes or a summary sheet consolidating both text and lecture content	Edit summary or universe of knowledge by checking against all sources of information, including the professor, teaching assistants, and other students for understanding, completeness, and accuracy for preparation of test
Limit	Write marginal notes, condensed words or phrases for key topics on left side and self reflections on right; write summary at top, bottom, or end of a comprehensive unit; critically evaluate using some set of criteria integrating author's, professor's, and own purpose	Note and perhaps evolving write structure of content relationships and how hangs together from condensations; continue evaluating "purposes"	List minimum topic code keys which unlock information stored in the universe of knowledge, keys which unlock other levels of specific which were part of earlier inputs
Look Again	Read over whatever used to summarize under list; ask questions using attacks on fact, interpretation, and application	Check recall and verify learning; drill for selective elimination of overlearned content from link and limit steps; recycle unlearned content to "read" step	Memorize from universe of knowledge materials using as many perspectives as possible

Figure 3
Relationship of the Seven Study Step Framework to Traditional Systems

Framework Step	Traditional Words for Technique Implied	Traditional Systems		
		Outlining	SQ3R	Underlining
Look*	Survey overview by preview < Skimming and Scanning	—	S = Survey general content sequence and structural divisions	—
Leap	Read for specific purpose	Read	R = Read actively	Read a comprehensive unit you can handle for your purpose (Rule 1)‡
Locate	Recall what was said	Implied mental questioning and categorizing	Q = Question† mental or written	What is author's message? (Rule 2)
List	Recite the answers to the recall	Write outline using logical coordination and subordination of items through indention	R = Recite mental or written	Underline words or phrases which make a complete sentence reflecting author's message (Rule 3)
Link	Reorganize for < Structure and Clarification	—	—	Edit by locating subpoints or facts in another color and by bracketing; add numbers or symbols for clarification
Limit	Reduce and reflect. for < Understanding and Consolidation	—	—	Edit by condensing to topic word in margin; synthesize with class notes; set up review techniques (Rule 4)
Look Again	Review or self-test for Retention	Implied	R = Review questions and answers	Implied

*"L" words systems developed in collaboration with Corin E. Kagan, University of Minnesota

†Change of order due to research findings (6)

‡4 Rule System adapted from Read, Underline, Review by Wark and Mogan (10)

DEVELOPING THE FINAL STUDY SYSTEM SCHEDULE

Having selected which study steps to do at which stages, you now need to match them with the time available. It is probable that a compromise will need to be made between the number of study steps selected and the time identified in your diagnosis for study of the text. You will seldom have enough time or be willing to spend enough time to do all that you think would give you a thorough coverage of the study task. Also, part of the time available may need to be used for general skills improvement diagnosed as "necessary" earlier.

When a compromise based on diagnosed priorities is established, you can develop a tentative time schedule covering your system of tasks. Hopefully, you will gain maximum efficiency of time and effort by planning appropriate time tasks at optimum hours in selective environments. Certainly you are not likely to resemble the "centipede trying to decide which foot to move first."

Re-evaluation of the effectiveness of your working system can be done after several weeks of practice or some feedback on grades. Adjustment of adding, dropping, or adapting techniques can be made if you find that you are doing too much or too little to accomplish the task.

Obviously, if you apply the system of diagnosis, selection, and programming to all parts of any course including notetaking, test preparation, and writing papers (4), you have a chance to stay caught up in terms of current work, synthesizing, and test preparation for your total credit load. However, just starting with the textbook will begin to open doors to successful accomplishment of your academic goals.

A unique system will be needed for each text. It is up to you to design a program fitting your objectives.

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BODY LANGUAGE: TOOL FOR DIAGNOSIS AND COMMUNICATION IN TEACHING COLLEGE READING

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The student who arrives at college with a reading handicap brings with him attitudes and emotional reactions toward reading and learning which serve as a firm barrier to remediation efforts. Unless the instructor can obtain insight into these attitudes and emotional reactions, and establish rapport and communication with the student, his efforts at remediation of reading problems are likely to effect limited improvement. A major technique for diagnosing the attitudes and emotional reactions which are limiting the reader's progress is the use of kinesics, or body language. Mutual understanding and practice of this technique can facilitate and hasten the kinds of communication and empathy which are essential to remediate reading handicaps.

DEFINITION

Nonverbal communication, kinesics, and analogic communication are some of the terms used in recent explorations of the field of body language. In kinesics, the term is sometimes limited to mean body *movement* only. Birdwhistell (5) states that kinesics is a learned form of communication and that no single movement stands alone *but must be interpreted as part of a pattern*–the context of the situation and the cultural background. Fast (10:14) believes body language is partly instinctive, partly taught, and partly imitative.

Nonverbal communication and analogic communication widen the meaning of body language to include not only body movement but posture, facial expression, voice quality and inflection, and the linguistic cadence, rhythm, and sequence of the words themselves. (Watzlawich et al, (30:62). This wider meaning is the one adopted by the writer, plus Birdwhistell's warning that none of these nonverbal communications can be interpreted alone, but must be considered in the context of the situation and of cultural background.

USE

It is important to note that body language as a tool is not limited to use with the severely handicapped reader, but becomes an important adjunct to teaching strategies in any situation, as well as to effective communication with other human beings.

> "Body image formulations are not only being applied to pathological formulations, but also increasingly to normal behavior." (Fisher, 11:2)
>
> "Awareness of body language is often a key to personal relationships and it may be the secret so many men use in handling others." (Fast, 10:11).

This paper, however, is concerned with body language as used to assist in diagnosis and communication with the college student whose reading skills are much below the level necessary for success in reading college materials.

CLUES

Keeping in mind Birdwhistell's admonition that no single movement constitutes a complete diagnosis, certain behaviors may be frequently seen in American society as indices of specific attitudes or feelings. Some of them are listed below:

- Anxiety, nervousness, embarrassment–husky voice, throat-clearing, sweaty hands or face, bitten nails, runny nose, playing with ring or finger
- Agreement– up and down head motion
- Aggression, hostility–frown, glare, clenched hands, forward-poised body
- Boredom–head tilted, sagging body, doodling, fidgeting, crossed legs and kicking motion, hands clasped at back of head with chin forward, yawns
- Confidence–head, arms, shoulders snapped forward; firm voice; erect jaunty walk, steepling
- Defensiveness–arms crossed over chest; crossed legs; crossed ankles; tight posture
- Depression–shuffling walk; shrinking back; huddling in too-warm garment
- Disagreement–move forward; cross/uncross legs; or arms; hand moving up slightly
- Disbelief–lift one eyebrow; pursed lips; head move left/right; mouth open
- Excluding others–bending toward each other, closed circle effect; backs to others
- Forgetfulness–slap forehead; grind knuckles on head
- Guilt–blank face, dropped head, hand covering mouth
- Impatience–tapping finger or foot; tense posture; pointing toward exit
- Indifference–shrugged shoulders; hands out; leg over arm of chair; slump

- Intimacy–wink as seductive move, or as shared joke; elbow poke; arm around
- Invasion of territory–edging backward, tense posture
- Lack of confidence–weak voice, hesitant speech; head down; hands clasped
- Not want to see/be seen–look away; take off eyeglasses
- Self-conflict, concern about understanding–closed eyes, hand pinching bridge of nose
- Self-protection, isolation–arms clasped across chest, pulling away of body
- Question–head, hand, voice move up
- Thoughtfulness–wrinkled forehead, chin on hand, rubbing head, twisting lock of hair

OBSERVATIONAL GUIDELINES

What are the times and places when the reading instructor can best observe significant body language? Some of the critical areas are given below. Lest this be a meaningless exercise in people-watching, it is essential to keep in mind these 2 questions:

A.What types of nonverbal communication will you look for?
B.How will you use the data you collect?

1. *In assessment situations*
    1.1 Entering behavior (baseline):
        -vocabulary test
        -standardized reading test
        -informal reading inventory
    1.2 Progress tests and final evaluations
2. *During instruction*
    2.1 Understanding directions
    2.2 Response to motivational techniques
    2.3 Decision point, when ready to go into action
    2.4 Working alone, with small group, with class
3. *On-going class meetings*
    3.1 Entrance into classroom
    3.2 Starting work, moving from one task to another
    3.3 End of class

COMMUNICATION

The handicapped college reader is often very limited in his ability to communicate orally or in writing, not only in his reading class but outside. He is also unaccustomed to receiving meaningful communication from the printed page at other than the "main fact-important details" level. Understanding of the written word frequently requires knowledge of implied body language. Students who are unaware of the non-verbal communication which writers can express only in words are sometimes at a loss to interpret such simple statements as the Cantonese proverb: "Watch out for man whose stomach doesn't move when he laughs."

Student Activity (1)

Use of informal demonstration and role-playing of the body language indicated in short selections and phrases from materials students are reading will increase student comprehension in an area untouched by vocabulary or comprehension drill. Additionally, from this non-threatening beginning and related discussion, students begin to pick up nonverbal cues which will help them communicate better with others. The significant proportion of handicapped college readers who are also handicapped in interpersonal relations are usually eager to explore avenues which will help them communicate.

It is important that examples be chosen from the students' current reading. However, some samples are included here for your consideration.

> "The eyes of man converse as much as their tongues, with the advantage that the ocular dialect requires no dictionary, but is understood the world over."
>
> – Ralph Waldo Emerson
>
> ice cold eyes – steely – knowing – burning – eyeball to eyeball – confrontation – uneasy look – look that could kill – a fish eye – a fish eye – poker face – give her the eye – come-hither look – stolen glance
>
> "There is a hand that has not heart in it, there is a claw or paw, a flipper or fin, a bit of wet cloth to take hold of, a piece of unbaked dough, a cold clammy thing we recoil from."
>
> – C.A. Bartol
>
> dead-fish handshake – limp hand – damp palms – shake hands like a man – friendly clasp – handslap – wristshake – kept at arm's length – politician's practised grip – surgeon's careful shake
>
> "A load of cares lies like the weight of guilt upon the mind; so that a man of business often has all the air, the distraction, restlessness and hurry of a criminal."
>
> – William Hazlitt
>
> uptight – losing his cool – hot under the collar – get off my back – blank stare – tapping foot – tight-lipped – grim-faced – eyes cast down – on the edge of his seat – poised as if to jump –

Student Activity (2)

Observation of models who are trained in use of body language, such as actors and actresses, and collection of mannerisms which elucidate body language implied in what the student is reading helps students develop pictures that clarify meaning.

2.1 Class observation and discussion of filmstrip such as Faces of Man (Argus Communications, 7440 Natchez, Niles, Ill. 60648)
2.2 Individual observation of TV programs

Student Activity (3)
Games which allow students to role-play parts, or demonstrate feelings through body language help the instructor determine individual blindspots.

3.1 *Body Talk* (Communications Research Mach., Inc. Del Mar, California)
3.2 Scene in which words are contradicted by body language is first role-played behind a screen, while class interprets what is happening; and then repeated in front of screen so that class can observe and interpret body language.

Student Activity (4)
Improvement of self-image through use of videotape can be used after students are familiar with body-language. It follows very well on the reading of autobiographies and discussion of self-image of the writer. Students should begin by making written assessments of their own strengths and limitations in every area, as a person (not as a reader). Then individual or small-group videotapes can be made, to help students see themselves, and the body language they are using to communicate with others.

> "In the last sixty or seventy years, highly significant strides have been made in our understanding of human nature; we know how strongly motivated we are by hunger, sex, status; much of the complexity of unconscious motivation has been laid bare . . . Yet we continue to have difficulty *using* this knowledge in appraising ourselves and others . . . Nobody is entirely free to use his psychological know-how for the purpose of appraising himself."

As this quotation from Fromme (12:166-7) points out, students cannot be expected to view themselves or evaluate others completely objectively, but with some knowledge of body language, they can pick up cues which demonstrate strengths and limitations in non-verbal communication. They can also be helped to use these cues to improve in nonverbal communication, and usually in self-image.

The 5-7 minute videotape should show the students sitting and working with a group, including at least one getting up and walking away from the table. Assessment of the tape can be done in individual conferences with the instructor, or with total class filling out unsigned assessments of each person as the tape is shown. For some students, the latter is too threatening. Value of this activity depends almost entirely on the instructor's ability to motivate students in assessing their own strengths and limitations, understanding the effect of body language as a communicative process, and helping each person to see his strengths and build on them to improve his limitations. One evaluative form looks like this:

name of student being videotaped ____________ date ____________

	Strengths	Limitations
Voice		
Facial Exp.		
Posture		
Hands		
Feet		
Space		
Comments		

CONCLUSIONS

Many aspects of body language have not been touched upon in the limited space of this paper. Selected references are listed for your further information. It is the writer's conviction that body language is a significant tool for meeting some of the unmet needs of the college remedial reader, as well as adding to the repertoire of the college reading instructor. Movement, posture, facial expression, voice quality and inflection, and linguistic cadence, rhythm, and sequence of words are the components of body language and another instrument for diagnosis and communication.

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ESTABLISHING A SELF-SUPPORTING INDIVIDUALIZED ADULT READING PROGRAM UTILIZING PERFORMANCE CRITERIA AS A BASIS FOR CREDIT

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INTRODUCTION

This article attempts to bring to the reader the method and description of a performance based Reading Improvement Course. It is also aimed at reading specialists working on two and four year college campuses across the country operating with little or no funds. Our objective is to show how programs can be developed from scratch with guaranteed profit during the first year of operation.

BACKGROUND

Bethany Nazarene College (BNC) is a fully accredited four year liberal arts college with an enrollment of about fourteen hundred located on a suburban campus about ten miles from metropolitan Oklahoma City. It has experienced a critical problem that most institutions have been experiencing: a lack of funds.

Last year the college president made it quite clear that no new programs would be considered and some of the existing programs would be eliminated. In spite of that, we armed ourselves with a proposal for a new college reading improvement program and made an appointment to see the Dean. After discussing the proposal, he agreed to provide the first floor of an old girls' dormitory of the facility, hire a full-time graduate assistant, and test all incoming freshmen with the Nelson-Denny Reading Test during the freshmen orientation week.

THE PROPOSAL

Because the original proposal was lengthy and not completely appropriate for inclusion in this article, the following points are offered in summation:

1. All students entering BNC would be required to take the Nelson-Denny Test administered at a pre-arranged time during the freshmen orientation week. Trained staff would give the test to about four hundred students located in various rooms around campus.

2. Results of the test would be tabulated during that afternoon and evening with a copy of the profile sheet delivered to the faculty advisor before registration began. The results would be discussed with the student and, depending on his score, the student would be encouraged to take the Reading Improvement.

3. The following criteria would be established to aid the faculty in their advisement:

a. All students coming to BNC who were admitted on academic probation would be required to take the reading course regardless of the Nelson-Denny results.

b. Students scoring a composite of 25 or below would be strongly urged to participate in the course; those scoring between 26 and 50 (composite score) were encouraged to consider the course; while those scoring above 50 were made aware of the course and given a chance to enroll, particularly if they might be interested in improvement in speed.

4. Students would be charged a fee of $75.00. The regular tuition fee at NBC is thirty-two dollars per semester hour which makes Reading Improvement slightly higher.

5. Students would enroll in one of four sections offered. These sections would meet for two hours per week with one section available at night. The course would be listed as variable credit from 0 to 2 semester hours; the fee would still remain at $75.00.

6. At the conclusion of the semester the student would receive one of three entries on his transcript depending on his performance in the course:

a. Two semester hours of "S"
b. One semester hour of "S"
c. No entry on the transcript in the case of no credit.

7. The criteria for credit is based on the following performance measures:

8. A projected enrollment of 80 students per semester would yield a total income of $12,000, with all but three thousand being allotted to salaries, equipment, and supplies. Actual enrollment of less than 80 per semester would automatically reduce the budget proportionately; over 80 would increase the profits to BNC, but salaries, equipment, and supplies would remain at $9,000.

9. The college would cooperate by providing 8 rooms from the first floor of the old girls' dormitory for the facility, supplying used furniture to fill the rooms, and paying all utilities for the facility.

THE COURSE OF STUDY

1. The student and instructor have a conference sometime during the first week of classes. The student is given a copy of his test results to

Criteria for Credit Assignment

Your Present Percentile Score	One Hour Credit			Two Hour Credit		
35 or below	Gain 25 pts. or reach the 50th %ile	or	55 hours in the center	Gain 40 pts or reach the 60th %tile	or	70 hours in the center
36 to 50	Gain 15 pts or reach the 60th %ile	or	55 hours in the center	Gain 25 pts. or reach the 75th %ile	or	70 hours in the center
51 to 75	Gain 15 pts. or reach the 85th %ile	or	55 hours in the center	Gain 25 pts or reach the 95th %ile	or	70 hours in the center
75 or above	32 hours in the center			55 hours in the center		

examine. During the conference the instructor helps the student to assess his needs. Comparisons are made between the test scores and what the student knows about himself. Depending upon what his scores are, the student might have his greatest need in speed, vocabulary, comprehension, or study skills. Basic decisions are made at the first conference.

2. The student is introduced to the WEEKLY LOG or master schedule. The instructor explains that each of the programs within the Center is listed on the LOG and also points out the particular programs that are designed to improve those areas in which the student needs assistance. The LOG is dated each time the student comes to the Center. When the student leaves the Center, he enters that time spent on each of the programs that he worked on, and records his total time in the Center for that day at the bottom. The instructor always looks at the LOG at least once a week and during each personal conference.

3. During the first two or three sessions the students spend their time acquainting themselves with the equipment. The instructor demonstrates to small groups at a time. After that, students help each other in working the machines, but the instructor is always there to help them as well. Nothing is taught in large groups.

4. The student must meet with the instructor personally once per week. During this conference, the weekly log is evaluated and new directions are given. In addition to the weekly conference, the instructor is present in the Center, explaining programs and helping with problems.

5. Students are advised that about one hour per week should be spent in pleasure reading. In fact, one of the high points of the con-

ference should be the sharing of recreational reading. The students are also encouraged to bring their college texts and use them with the rate building machines.

6. The students are advised that in addition to the two hour class time, an additional two hours must be spent in the Center each week. The Center is open from 9-4 daily and until 9 p.m. on Monday and Tuesday evenings.
7. At the conclusion of the semester or when the minimum number of hours has been completed, the student is allowed to take the Nelson-Denny Test–Form B. Based on comparisons between the pre-test and post-test, credit will be awarded according to the criteria outlined earlier.
8. The course may be repeated by a student with a maximum of four hours' credit allowed on a transcript. The credits will count as electives towards graduation.

MATERIALS IN THE CENTER

The equipment included is the Tach X, Flash X, Controlled Reader, EDL Study Skills, Listen and Read Program, Word Clues, Reading Accelerator, Wordcraft, and paperbacks.

CONCLUSION

After only one semester of operation, 62 students took the post-test. Of those, 54 received two hours credit, 7 received one hour credit, and one student received zero hours credit.

It is the belief of the authors that other reading teachers can develop a similar program and experience success, too.

READING AND STUDY SKILLS WHICH PREDICT SUCCESS IN FRESHMAN BIOLOGY

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INTRODUCTION

A current trend is the development of curricula to meet the varying needs of individual students. This idea prevails from preschool through college.

The implementation of the open door policy in many institutions has made educators more aware of students who matriculate in college without basic skills that are so essential for the academic demands of higher education.

Van Deventer (8) maintains in addition to providing the parallel science offerings for the student who will be transferring to a four year school, the junior college has important objectives in meeting the curriculum needs of the terminal student by providing other kinds of science courses, both general and specialized. Even though these non-science major courses are designed to be survey or problems oriented courses, they are nevertheless inherently engulfed with the scientific terminology as indicated by their course descriptions listing cell theory, biochemistry, genetics, phylogenetic survey of kingdoms, embryology, and evolution.

According to Shores (7), the reading preparation for these science classes includes three major types: recreational reading as found in newspapers, popular books, and magazines; collateral reading dealing with actual research of scientists reported in scientific journals and books; and intensive study of textbooks, workbooks, and laboratory manuals. However good a student's "general reading ability" may be, this measure of reading achievement cannot be relied on to carry him to successful performance. Leary (4) reported that the problem of vocabulary is of first importance in contributing to the reading problems in science. As a matter of fact, she states that words need not be outside of the Thorndike list of words to cause difficulty when applied to scientific terminology.

If students are to be successful in college science courses, it is mandatory that some understanding of the technical vocabulary be established. In fact, much of the difficulty of sciences is due to the terminology and is not necessarily due to the difficulty of the scientific concept. Many college instructors do not possess sufficient awareness of the lack of development of this technical vocabulary by their students. The poor vocabulary scores of students in a study conducted by Belden & Lee (1) suggests problems in the utilization of materials in science with that field's normally difficult and technical vocabulary. Findley (3) contends that the correlation between scientific vocabulary and scientific achievement makes it imperative that the problem of the technical vocabulary in science receive increased attention from both authors and teachers.

In addition to the general vocabulary development of the student and to the technical vocabulary in science, a second "language" essential to achievement in science is in the field of mathematical terms. In an analysis of five million words in science textbooks, Curtis (2) discovered that the average number of different difficult mathematical terms per book ranged from a low of 81 to a high of 159.

PURPOSE

A recent innovative approach was initiated in an attempt to identify and, if possible, alleviate some of the academic difficulties encountered by non-science college students enrolled in a general education course in biology designed to meet graduation requirements. This study, concerned with the relationships between reading achievement and success in the biology course, was one facet of a larger investigation designed to resolve this curriculum problem.

PROCEDURE

In an attempt to determine what relationship exists between various reading skills and success in biology, the California Reading Test and the Diagnostic Reading Test were administered in a regular class period to a total of 68 students in three sections of a freshman biology class. In addition, inasmuch as the Nelson Denny Reading Test, Form A, is employed as a placement test, the comprehension scores from this test were awarded to 65 of these students, thereby determining the final total "n" of 65.

THE ANALYSIS DESIGN

There were nine reading scores available to be utilized as predictor variables. The objective of the analysis was to determine the degree of relationship that exists between each of the individual reading scores and the grades earned by the students enrolled in the biology class. The predictor variables were defined as:

California Reading Test (7 categories)
- A. Mathematics
- B. Science
- C. Social Science
- D. General

E. Following Directions
F. Reference Skills
G. Interpretations
Diagnostic Reading Test Raw Score
Nelson-Denny Comprehension Test Score

The criterion variable was defined as:

GRADE	VALUE
A	4
B	3
C	2
D	1
F	0

The Pearson Product–Moment method was employed and a coefficient of linear correlation was calculated between each of the nine (9) predictor variables and the single criterion variable. In each case a regression equation was formulated.

The two predictor variables from the California Reading Test Categories having the most significant relationship with the criterion were analyzed by the multiple regression analysis technique. A multiple regression equation was formulated for this case.

Means and standard deviations were calculated for each variable as reported in Table 1.

RESULTS

In Table I the means and standard deviations are reported for each variable.

In Table 2 the coefficients of linear correlation are indicated between each predictor variable and the criterion. It may be seen by examining the reported correlation coefficients that, in general, the relationships are

Table I

Means, Standard Deviations and Sample Size of Nine Predictor Variables and One Criterion Variable

Variable	$\overline{X}$	S.D.	n
California Reading Test			
A. Mathematics	9.91	2.37	68
B. Science	10.05	3.16	68
C. Social Science	10.49	3.11	68
D. General	9.07	2.78	68
E. Following Directions	7.19	2.63	68
F. Reference Skills	13.94	4.34	68
G. Interpretations	29.69	7.75	68
Diagnostic Reading Test	61.69	14.63	71
Nelson Denny Comprehension	11.24	2.07	38
Grades	2.35	1.23	65

Table II

Coefficients of Linear Correlation Between Nine Predictor Variables and Grades Earned in Biology

Predictor Variables	Correlation Coefficient	Levels of Significance	
		.05	.01
California Reading Test			
A. Mathematics	.37	*	*
B. Science	.41	*	*
C. Social Science	.23		
D. General	.33	*	*
E. Following Directions	.23		
F. Reference Skills	.27	*	
G. Interpretations	.26	*	
Diagnostic Reading Test	.40	*	*
Nelson Denny Comprehension Score	.23		

slight. However, the following are significant at the .01 per cent level: mathematics, science, and general of the California Reading Test and the Diagnostic Reading Test.

Regression Equations were formulated for each of the predictor variables and they were found to be:

California Reading Test

Mathematics

$$Yc = .1958 + .2087x$$

Science

$$Yc = .8261 + .0962x$$

General

$$Yc = 1.0383 + .1464x$$

Following Directions

$$Yc = 1.5287 + .1174x$$

Reference Skills

$$Yc = 1.2894 + .0771x$$

Interpretations

$$Yc = 1.3162 + .0365x$$

Diagnostic Reading Test

$$Yc = .0330 + .3310x$$

Nelson-Denny Comprehension

$$Yc = 1.410 + .1038x$$

A multiple correlation coefficient was calculated between the criterion variable and the 2 highest predictor variables from the California Reading Test Categories. The results are:

$$Ry\,(x_1x_2) = .43$$

$$r_{y}x_1 = .37$$

$$r_{y}x_2 = .41$$

$$rx_1x_2 = .62$$

where:

x_1 = California Reading Test (Mathematics)

x_2 = California Reading Test (Science)

r = Correlation Coefficient

R = Multiple Correlation Coefficient

The Multiple Regression Equation was found to be:

$$Yc = .0982x_1 + .1128x_2 + .2653$$

CONCLUSIONS AND RECOMMENDATIONS

The review of the related literature reported in this study as well as numerous other investigations support the conclusion that a background of scientific terminology and mathematics terminology is of major importance to success in a general college course in biology.

It is recommended that students who enroll in a biology class be administered a test to measure their scientific and mathematical vocabulary knowledge in an attempt to identify weaknesses in these areas. Students who are identified as possessing inadequate vocabulary knowledge in these areas should undergo an extensive crash program in order to assist them with this vocabulary development. This co-requisite course program could be under the direction of the instructor or could be designed through use of mini-course packets such as found in learning laboratories or developmental centers. It is recommended that a vocabulary testing program and co-requisite course program be developed to enable implementation of these recommendations.

A follow-up study determining the effectiveness of this procedure should be made. The data utilized in this study should be further analyzed to locate at what point a pass or fail predictor can be determined for students enrolling in this particular class in order to maximize the best holding power for a student ratio in classes of this nature.

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DEVELOPMENT OF A FOUR-LEVEL COLLEGE READING PROGRAM INCLUDING RECOGNITION OF THE BI-LINGUAL FACTOR

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Ten years ago there were two reading instructors at San Antonio College, San Antonio, Texas,—one full-time and one part-time—both assigned to the counseling department. In 1971-72 there was a separate Department of Reading with fourteen instructors and an enrollment of 3,500 students at this forty-eight-year-old-traditionally academic college. How and why this expansion has come about is another of the amazing chapters in the junior college saga of the '60's and '70's.

A natural expansion occurred resulting in the creation of five areas within the department:

1. Individual Reading Instruction (IRI)—Designed for the student whose reading level indicates that he will benefit from individual reading instruction. His reading level may reflect a language barrier, an educational lag, or a physical impairment. Placement usually indicates a minus seventh grade reading level.

2. Basic Reading—Designed for students who have not acquired adequate reading skills. Stress is placed on comprehension, vocabulary and study skills. Placement indicates seventh, eighth, and ninth grade levels.

3. Intermediate Reading—Designed for development of reading skills beyond the basic level. Stress is placed on flexible speeds, comprehension, and vocabulary. Placement indicates tenth and eleventh grade levels.

4. Speed Reading—For the student who is reading at average or above-average level and who wishes to improve reading techniques and skills, involving speed, flexibility, and comprehension. Recommended for preparation for many types of examination, job-improvement skills, and executive training. Placement indicates twelfth, thirteenth, and fourteenth-plus grade levels.

5. Learning Skills Center—In addition to the courses described above, the department operates a Learning Skills Center, or clinic, which provides opportunities for diagnostic services. On a limited basis, these diagnostic services are also available by referral as a community service. The center is interested in working with students who have reading problems. Students whose educational problems are primarily related to mental retardation or emotional adjustment are not accepted.

PRESENT PHYSICAL FACILITIES

At present there are five classrooms, three laboratories, a clinic, and fourteen offices. Much of the hardware is mobile and can be moved on carts from room to room. In the laboratories there is an assortment of hardware including PDL, EDL, and SRA, and shelves and carrels. In the clinic, among other types of equipment, there is an audiometer, telebinocular, prism reader, and reading-eye camera. A prized area is a central storage room for sets of books and for a teachers' library.

In the laboratory for teaching blind and partially sighted, there are ten standard typewriters, tables, a talking book machine, cassettes, and reel-to-reel tape recorders, earphones and jacks, and six Perkins Braillers. The college also provides paper for volunteer Braillests who Braille texts and examinations from other disciplines. The latest acquisitions are a Language Master and a Thermofax Braille duplicating machine.

PHILOSOPHY

Students placed in the first three levels of reading generally are lacking in motivation, may be culturally deprived, educationally deficient, and familiar with failure. These factors perpetuate one another and create a vicious cycle of not learning to read and not reading to learn. The aim is to break this cycle with exciting, innovative, personalized instruction.

Instructors are encouraged to work in their own unique styles with no pressure for conformity. Successful innovations are shared at monthly staff meetings.

PLACEMENT

All new students entering San Antonio College are given the Nelson-Denny reading test when they come for their initial counseling interview. This means that for a period of six weeks in the summer, the test is given on the hour every hour Monday through Friday. When the counselor first sees a student, he has access to the student's reading score, a college entrance examination score (either ACT or SAT) and a high school transcript. Coupled with the personal interview, all these factors are utilized in placing students in reading classes. In some cases the choice is optional with the students; in other instances reading is a required course. The Advanced Speed Reading is purely elective and not in a category described above. This level is especially popular in evening division courses. In fact, many individuals in speed reading already have Bachelors and even higher degrees. The ages in all classes may range from eighteen to seventy.

BI-LINGUAL FACTOR

Approximately 41 percent of the student body at San Antonio College have Mexican-American surnames. The ACT correlation with Nelson-Denny reading score is English .60; Mathematics .52; Social Studies .61; Natural

Science .51; and Composite .67. From actual experience, the instructors learned that this correlation was not adequate for placement purposes at SAC because of the bi-lingual factor. The mean ND grade level of all entering Freshmen Fall 1972 was 11.3. Further study showed the mean of students with Mexican-American surnames was 11.0 and all other surnames had a mean score of 11.5. The mean reading grade level of entering Freshmen Spring 1973 with ACT composite scores of 15 and below of 10.3 grade level. Of this group 56 percent had Mexican-American surnames. The Spring 1972 survey of basic reading classes showed a mean ND score of 9.9 grade; an ACT composite mean of 08, and a mean SAT total of 545. The overall college mean ACT standard composite score was 13.61 with a median of 13.00 and standard deviation of 4.63.

INSTRUCTORS AS SPECIALISTS

Since it is impractical, if not impossible, for instructors to become specialists in all areas, they have tended to concentrate on those skills for which they have a particular affinity.

The clinician screens students who are referred to her by other reading instructors, by counselors, by other college staff members, or from the community. She employs a visual survey test, auditory discrimination test, and tests with use of the telebinocular and reading-eye camera. The prism reader is also available. Personal background information is investigated, and the clinician may work with the department of psychology for psychological testing. An analysis of reading performance covers oral reading, word recognition, fluency, and study skills.

After the clinical workup, the student may be referred to professional services such as a neurological clinic, the mental health clinic, or office of an opthalmologist. The student and the student's family make this decision. If remediation is suggested by the professional, his prescription is carefully followed when the student returns to the clinic for training. The student's specific strengths and weaknesses always dictate teaching methods and materials.

The instructor for the blind and partially sighted is an accredited Braillist who was trained at the University of Minnesota. In her classes students are taught to type their thoughts directly to the typewriter in order that they can write assignments and take tests. Any student who wants to learn Braille may do so. Tests in other disciplines are Brailled by the reading instructor. The student types his answers for the subject instructor to grade. Textbooks for other disciplines are prepared by volunteer Braillists from the community. Some textbooks are also recorded on tape. Specific books may also be ordered from the American Printing House for the Blind. A central card catalogue of books available through this organization is most beneficial. There is a special pride in the Braille work that has been done for students who are studying Spanish.

In addition to the blind and partially sighted, provision has been made to care for a number of severely handicapped in special classes using the typewriters and audio equipment. In this same laboratory, readers, when made available by the Commission for the Blind, Texas Rehabilitation, or Disabled Veterans, are assisted by the instructor in using equipment to the benefit of the handicapped.

Special skills are needed by the instructor of the non-English-speaking students. These classes always include a mixture of natives of many countries: Korea, Iran, Mexico, India, Japan, and China, to name a few. The need is probably more pronounced in San Antonio because of the large military establishments which tend to draw foreign-born trainees and their families. The instructor of the foreign-born spends a great deal of extra time with each individual student, even to the extent of sponsoring a club for foreign-born. The teacher who is presently a specialist in this field has taught English to adults in Arabia and Okinawa before coming to San Antonio College and is presently studying Spanish in order to become proficient in the language which is common to this locale.

A service which has proved beneficial to other departments when selecting textbooks is the reading department's application of a reading formula to potential adoptions. This has made it possible to insure textbooks at the twelfth to thirteenth grade level for freshman courses. This service has also helped the reading department to establish better liaison with other disciplines. So far this semester, Spring 1973, the clinician has evaluated forty-one textbooks.

PRE- AND POST TESTING

As previously described, each student is given a pre-test of Form A of the Nelson-Denny. At the end of the semester, Form B is administered. Records have been kept for a number of semesters which indicate a gain of one to two grade levels per semester per student. The several levels and different teaching techniques have created variables which have tended to make a mean increase difficult to identify. As would be expected, some students become highly motivated and increase four and five grade levels in one semester. Staff members are continuously in the process of evaluating causes of failure and success.

Ten years ago many of the students who are involved in the first four levels of this program would have had no place beyond the high school, or even the traditional elementary school, in the educational hierarchy. The wide-open door has demanded new and challenging approaches to reading. But none of the hardware, none of the printed materials have given us the answers found solely in the dynamic personality and dedication of the individual teacher.

YOU'RE ENCROACHING ON MY TERRITORY: PROXEMICS AND THE COLLEGE READING SPECIALIST

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How does man react to the space about him? How does he use this space? What does his use of space communicate to other men? Questions such as these have long fascinated Dr. E. T. Hall, Professor of Anthropology at Northwestern University. In his studies of man's personal space, Hall used the term *proxemics* to describe his theories and observations about zones of territory and how we use them. (3)

It is the thesis of this paper that proxemics provides understandings of value to the reading specialist as he plans the instructional format and learning environment of the college reading laboratory.

AN INTRODUCTION TO PROXEMICS

Territoriality, or the establishing of personal space, has long been observed in animal behavior. It has been the subject of much discussion on the part of lay people and scientists alike. (1)

Recently, investigators have begun to recognize the extent to which man has developed his territoriality. Establishing territorial boundaries appears to be an intense human activity. Man has literally thousands of experiences which teach him that space communicates. He learns, for example, not to sit in his father's chair. He learns to maintain a certain distance from people when conversing with them. He recognizes status by the placement of executive desks in an office. He adopts certain ways of behaving when he wants privacy.

Space is organized differently in various cultures. Hall (4) gives several illustrations of the way in which learned patterns of behavior can cause discomfort and even conflict between men of two different cultures. He reports that American Point Four technicians living in Latin America often complained that they felt "left out" of things or "shut off" from the people, because of the high walls which surrounded each home and effectively cut off communication with neighbors. Yet in conversation with Latin Americans, these same technicians felt crowded and uncomfortable because the interaction distance for Latin Americans is much less than it is for North Americans. (In fact, Hall noted that Latin Americans stand closer when they talk than Chinese or blacks, and Arabs stand even closer than Latins do.) When the technician felt the other person came too close, his reaction was instantaneous and automatic–he backed up. As one person tried to increase the distance in order to be comfortable in the conversation, the other person tried to decrease it for the same reason, often traversing an entire room in doing so. According to Hall, the Latin American could not converse comfortably with the technician unless he was at a distance which evokes "either sexual or hostile feelings in the North American." (4:64)

Hall's research (3:4) indicates that for most natives of the United States the following ranges of distances have these meanings:

intimate	close	0–6 inches	soft whisper; top secret
	far	6–18 inches	audible whisper; very confidential
personal	close	18–30 inches	indoors, soft voice; outdoors, full voice; confidential
	far	30–48 inches	soft voice, low volume; personal subject matter
social	close	4–7 feet	full voice, information of non-personal nature
	far	7–12 feet	full voice with slight overloudness; public information for others to hear
public	close	12–25 feet	loud voice; talking to a group
	far	25 feet or more	hailing distance, departures

Fast (2) reports a study conducted by Professor Stanley E. Jones suggests that people from other cultures who come to live in the crowded ghettos of Manhattan very soon demonstrate changes in their conversational distance patterns. After two years' work in Harlem, Chinatown, Little Italy and Spanish Harlem, Jones concluded that in the overcrowded areas in the culture of poverty virtually everybody, regardless of ethnic background, stood about one foot apart in ordinary conversations.

Observers have noted that when Americans stand in line for some event, they expect to be treated fairly. Yet in many cultures the attitude is: "Why form a line? It's easier when you mill around." (2:32) This attitude is particularly difficult for Americans to understand, since cultural patterns in the United States generally discourage touching, except in moment of intimacy. When Americans ride on a bus or in a crowded elevator, they tend to "hold themselves in," having been taught from childhood to avoid bodily contact with strangers. (4:149)

Americans, Hall found, tend to retreat to a place where they can be alone if they want privacy. The Englishman and the Arab, however, retreat not from the room, but into themselves, which Americans often interpret as "the silent treatment," since it occurs in a place where communication was happening only moments before.

IMPLICATIONS OF PROXEMICS FOR THE COLLEGE READING SPECIALIST

1. Be conscious of what you are conveying if you greet entering students from behind your desk. The teacher's desk serves as a buffer zone between the teacher and students in such a situation. This non-verbal insistence on the Teacher's superiority in the classroom may present a barrier to communication in its emphasis on the teacher's privileged territory–his desk.

2. In conversing with students from culturally different backgrounds, watch where people stand–and don't back up. In this regard Hall observes "You will feel funny doing it, but it's amazing how much difference it makes in people's attitudes toward you." (4:150)

One thing that does confuse the American white middle-class teacher is that in his own culture people can be distant or "pushy" in their use of space. As a result, the teacher may jump to the conclusion that the culturally different person feels the same way about these identical overt acts (4).

Conversely, the teacher needs to assess the effect his moving closer has on the student. If the student moves backward, don't pursue.

3. If you tend to touch a student to demonstrate reassurance or get his attention, be aware of how he reacts to your invasion of his personal space. You can destroy an otherwise fine working relationship, if the student cannot accept this gesture on your part, and you persist in using it.

Nierenberg and Calero (5) have noted that the touching gesture is many different things to different people–to some an endorsement, to others an interrupt signal, and to still others a threat.

4. In working with a student on a one-to-one basis, sit next to him, not across the desk from him. The professional seated behind a large desk, which serves as a barricade to his client, may elicit such thoughts from the client as "He is not on my side. He doesn't care about my problems. . ." (5:149) For this reason many college reading specialists confer with students at a round table or at the corner of a desk.

The reading specialists can also use body language to further convey his interest in the client. The thinker-type posture that many professionals almost automatically assume when a problem is presented them, is an important gesture and one that creates a feeling of confidence in the client. Leaning forward toward the client is another key gesture of interest in the client and his problem.

The way the student handles space in the interview situation can be very revealing to the reading specialist. Fast reports a study by W. E. Leipold which demonstrated that students with a positive attitude toward the interview sit closest to the interviewer's chair on entering an empty room, those under stress sit farthest away, and those with neutral reactions sit midway. Introverted and anxious students sit further away than extroverted students under the same conditions. (2:44-45)

5. Recognize the space needs of your students by being alert to nonverbal clues which they give. No matter how crowded the area in which humans live, each person maintains a zone or territory around himself—an inviolate area each tries to keep for his own. (2) A student demonstrates this when another person's books or papers invade the space he has determined as "his own." The invaded person will often move his own materials as well as himself and set up a new zone.

Hall has noted that:

> Territoriality is established so rapidly that even the second session in a series of lectures is sufficient to find a significant proportion of most audiences back in the same seats. What's more, if one has been sitting in a particular seat and someone else occupies it, one can notice a fleeting irritation. There is a remnant of an old urge to throw out the interloper. The interloper knows this too, because he will turn around or look up and say, "Have I got your seat?" at which point you lie and say, "Oh no, I was going to move anyway." (4:147-8)

Nierenberg states that if a student sits in the back of the room, he can be assured a certain amount of anonymity at the risk of missing some fine points in the lecture, while if he sits up front where he can hear and see comfortably, he is also conspicuous. (5)

Some students have very direct methods of claiming "territoriality rights." Nierenberg and Calero (5:99-100) have found that people who put their feet up on things nonverbally communicate dominance or ownership. He also observes that people often extend territorial rights by distributing various personal articles—coat, purse, books, newspapers—around them, hoping not to be encroached upon.

Students can sometimes be observed playing a game similar to the one described by Nierenberg and Calero:

> A friend of ours used to get good-looking girls to sit next to him on cross-country bus trips by taking an aisle seat—since he had observed that women like to sit by the window—placing a pillow on the window seat, then gesturing his willingness to remove the pillow every time a good-looking girl walked down the aisle looking for a seat. Giving up his territorial rights won him an enviable number of attractive companions. (5:100-101)

6. *When placing students in groups for discussion or work, allow for territorial needs of the group.* If the group is working around a rectangular table, the leader will automatically assume the head of the table position. (2:41) This can very easily lead to a leader-participant-leader kind of discussion pattern. At a round table where the leader is less visible, a more democratic interaction pattern of discussion is encouraged.

In a group, members often must sit very close to each other in order to be heard. This sometimes encroaches on the territorial rights of participants in the group. In such situations, Fast suggests that it is important for poeple thrust together on such intimate terms to regard each other as non-persons. (2:49) Otherwise the situation becomes awkward. Fast believes that this recognition of adjacent people as non-persons can have a demoralizing effect on the people involved. Unless the situation is brought into proper focus early. ("This is our assignment.") It would seem important for the teacher to be highly visible, perhaps by standing, at this beginning point, so it is clear that a particular outcome is to be expected by this group activity.

CONCLUSIONS

The field of proxemics seems to offer a wide variety of implications for the college reading specialist as he plans the instructional format and learning environment of the reading lab and develops his ability to communicate effectively with his students.

Proxemics is just one aspect of culture. Taken as a whole, culture is the link between human beings and the means they have of interacting with each other. Human lives take on richness as people expand their experience with the millions of possible combinations involved in complex interacting cultures.

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THE HANDICAPPED AND DISADVANTAGED STUDENTS IN THE LEARNING CENTER

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College of San Mateo

Our Learning Center came about because of the open-door policy in California's community colleges, which had become the revolving-door policy. Any student who has graduated from high school or who is over eighteen and can profit from college is admitted. And all too often that was it; he was admitted, permitted to register for classes, and permitted to fail, and was dismissed. One could say in some cases that he was even encouraged to fail and be dismissed. Some of us thought that policy was wrong. We thought that if an institution permitted a student to enroll, it incurred an obligation to assist that student to succeed. In effect, the student was saying that he wanted to attempt something, the college was agreeing to allow him to make his attempt; so the college should then aid him in his attempt. Whatever he required should be provided; if he required something the college could not or would not provide, the college was misleading him, doing him a disservice, by permitting him to enroll in the first place. We opened our Center with that philosophy in mind.

What do we offer in our Center? First, tutoring. Tutoring is the heart of our program. Students may just drop in, be referred by counsellors or instructors, or be recruited by tutors in need of customers. A student may see a tutor only once or twice–he missed some math classes and needs some help in catching up. He may see a tutor regularly–he can handle the subject but he is a slow learner and needs regular assistance. He may meet in a small group with a tutor, doing work supplementing that being done in his class. Often the classroom instructor participates in these groups. Or, tutors may run small, short-term seminars in areas where they have particular expertise–our tutors come from everywhere, from second-year students at our own college to college graduates in the community. We have had seminars in everything from art to existentialism.

Next, we have regular classes which meet daily. In these classes students again meet a wide range of offerings. Study skills might be the area of concentration for awhile and then there might be a series of field trips to explore the college–watch a demonstration of glass blowing, see what goes on in the aeronautics department, observe the architecture students at work on a project. The intent is to open up the college to the students, many of whom do not know what they want to do, in part because they do not know what is available to them.

The Center has programmed offerings. There are tapes for both the regular English program and for the English as a Second Language program. There are slides to supplement the course in art history. Programmed texts and reading machines are available. Films, records, and tapes are available through our audio-visual department.

The Center has two part-time academic counsellors and a part-time psychologist. We have found that the student who will not or cannot consult with the counsellor to whom he is assigned will seek the aid of a counsellor who seems to be just sitting around the Center. And the student with personal problems who resists consulting the psychologists in Psychological Services will pour out his troubles to the psychologist who is one of the Learning Center family.

A word about that "family." Our Center is run by a committee that elects a chairman who reports directly to the Dean of Instruction. He can, as needed, deal directly with any other administrator. Internally, the committee decides policy within the boundaries set by the Dean, establishes programs, hires and fires tutors, and generally operates with considerable autonomy. The tutors elect two representatives who sit on the committee with full voting rights. Hence, the tutors feel that they can have direct input, that they have responsibility, that they have interests which are recognized. They feel a sense of "belonging" in the Center which helps to overcome the sense of bleak anonymity felt by so many students in our commuter colleges. This feeling filters down to the trustees, who look upon the Center as one agency of the college not dominated by administrators or instructors, where they are known by names rather than number, where they can drop in, have a cup of coffee, and chat with the person next to them without any concern for where that person stands in the academic hierarchy.

It should be obvious that the staffing of a Center such as the one I have described is critical; there is room neither for the authoritarian nor the bigot. The academic snob should not apply, and neither should the traditionalist. The precise instructor whose roll book is kept up meticulously and whose desk is always tidy shudders at our operation. If the Learning Center staff member can be described in one word, that word is "flexible." For example, one member of the staff designed and put into operation our entire Reading Laboratory program, initiated the use of para-professionals in the Reading Laboratory, assisted an English as a Second Language instructor in setting up a special ESL Reading Laboratory. Another staff member developed the college's English as a Second Language program and sought the assistance of the director of the Reading Laboratory in setting up the special section mentioned above. Still another began with the college as a para-professional in the Reading Laboratory, became interested in students' learning problems, and has been with the Learning Center since it opened. A fourth taught guidance and orientation classes for some years before the Center opened. All of them people interested in students and their problems; all of them flexible.

What does all the above have to do with handicapped and disadvantaged students? Quite a lot. In the first place a Center such as the one described is going to have a lot of disadvantaged and handicapped students already in it. In California disadvantaged students are those who have "academic, socioeconomic, cultural, or other handicaps" that prevent them from succeeding in programs designed for persons without such handicaps, "and for that reason require specially designed educational programs or related services." A handicapped student is one who has physical, mental, or emotional problems that present the same needs as noted above. So we already have many of these people. They have drifted into our Center because they were having academic problems and there was no agency on the campus specifically responsible for helping them. They came to us with their problems in chemistry, electronics, French, or whatever, and it was readily apparent that they did indeed have problems in those subjects. But as we got to know them better we began to see that their academic problems arose at least in part from the fact that they were immigrants with a poor command of English; they were members of ethnic minorities and products of substandard ghetto schools; they did not have enough money to pay for decent food and shelter; they had broken marriages and children to care for; they had such severe sight impairments that they could not keep up with the reading assignments; they were confined to wheel chairs and had difficulty getting into the library. Our tutors did their best and even had some success with the chemistry, electronics and French, but it become very clear that we were really attacking the symptom, not the disease. We, with one-to-one tutoring, could get the wheel chair student through his chemistry class, but unless we could help him with his physical handicap, we were but a first-aid station.

Here we could have called a halt, saying, "Sorry, but we do not have the facilities and the trained and experienced personnel to work with handicapped and disadvantaged students. They require special facilities, special people. The college should set up a special agency to serve them" For two reasons we did not follow this course. In the first place our college suffers from the common budget squeeze. No new agency was going to be set up and certainly no new personnel were going to be hired. But even more important, the disadvantaged and handicapped we were working with did not want to be segregated any more than was necessary. And the professionals in the field whom we consulted agreed unanimously. If the special kinds of students we were thinking about were ever to succeed in the world they were going to have to get into that world and not be isolated and categorized as "Blind," "Deaf," and the like.

We agonized over the problem at several staff meetings. Some had grave doubts. Might we not in our ignorance do more harm than good? Might we not in our misguided efforts to help arouse false hopes that could only be cruelly dashed? But the argument that it was the Learning Center or nothing for these people, that if we did not give them whatever help we could they would receive none, carried the day. The argument was given added weight when the community agencies we consulted all encouraged us to go ahead and offered assistance in the form of consultation and advice.

So what have we done? We have some twenty-five handicapped students, an undetermined number of disadvantaged, and some part-time staff in the program. Part of the problem is identification; no one knows who the handicapped and disadvantaged are. According to state figures, we at the College of San Mateo, with a student population of some eight thousand, must have over five hundred students who are handicapped according to the legal definition. We are working on a questionnaire that hopefully, will identify the handicapped by next fall; no one has yet figured out how to identify the disadvantaged. That is one reason we have moved slowly, maintained a low profile; we do not want to be flooded before we have adequate facilities and staff. So we have moved along slowly, making do with what we have, wheedling a little more space here, a part-time paraprofessional there. Slow work. Specifically, we have:

1. *Provided services for blind students, such as getting texts and lectures taped, getting books in Braille, providing tutors to orient them to the campus, providing transportation, even seeing that seeing eye dogs get exercised.*
2. *Provided services for orthopoedically handicapped. Motorized wheel chairs break down and there seem to be no "loaners." Someone must push a conventional wheelchair around for the student until his comes back from the shop.* And someone must talk instructors and deans into moving classes when they are scheduled into classrooms on the second floor of buildings with no elevators and the classes are in subjects required for a major by a handicapped student.
3. *Arrange for special pre-counselling so that handicapped students can learn about their textbooks ahead of time.* This is especially important in the case of the blind, where the lead-time for getting a book into Braille can be a year, thus requiring the use of readers and tapes.
4. *Steered handicapped students to sympathetic instructors.* This is a touchy one, but it must be faced: some of us are uneasy around people who cannot see, people with no legs. Although it might well be argued that such persons, especially when they are teachers, should change their views, I for one am not going to be the agent who steers a handicapped student into a situation I know to be potentially embarrassing, even damaging.
5. *Briefed instructors as to what we were trying to do.* The most striking example in our experience came about with our data processing department. The state will pay for training blind students in data processing at a school in Southern California; a blind student wanted to pursue such a program (being black, he is also disadvantaged). The people in the Vocational Rehabilitation Office wanted him to start in our data processing program in order to determine whether or

not data processing was really his field. We approached a data-processing instructor whose reaction was quite understandable. "A blind student in data processing? No way!" So we had a meeting with some Vocational Rehabilitation people who pointed out that more than fifty blind people already work in data processing in California, they arranged for a visit to a local insurance office where four blind persons work in data processing, and we had a convert who now makes himself obnoxious to the administration as he demands the equipment he needs in order to further the efforts he wants to pursue for blind students.

I could go on; the list is endless, for the need is endless, for all students have needs which are constantly arising, and students with special problems have special needs. But I hear a voice in the corner asking, "how do you find the funds for all this?" The answer is that we do not, not adequately; we need much more in order to do a proper job. But once one has decided to do the job at all, there are ways. For one thing, your college needs you, you have some muscle, however little. Most of our colleges get money under the Vocational Education Act; under the law, ten percent of that money must be spent for programs for the disadvantaged. Not a few schools in my state have recently had to turn back money because they were not offering such programs. Programs offered through the Learning Center can get administrators off the hook. And there are grant funds available for one-shot projects, such as removing architectural barriers and purchasing special equipment, equipment which can be used for your regular program when it is not needed for the handicapped. I do not mean to indicate that the financial problem is easy–it is not–but there are ways to make do and get things moving.

So what about the role of the Learning Center in programs for the handicapped and disadvantaged? It is a natural role; there is a need you can fulfill; you know more about the problem than anyone else on your campus; and you already have the problem anyway. As I see it, first came the Reading Laboratories; in their attempt to teach reading, reading teachers uncovered a host of related learning problems thus leading to Learning Centers. Now we have uncovered more related, and I believe inseparable, problems concerning the handicapped and the disadvantaged.

WHAT DOES–WHAT KNOWS–WHAT IS COLLEGE OF THE MAINLAND'S READING RESOURCE CENTER?

Sol M. Rosen
College of the Mainland

We are both deeply and greatly indebted to an unknown author-philosopher. His forty-one words very simply and briefly state the underlying philosophy and purpose of College of the Mainland's Reading Resource Center. The "Twelve Famous Rules for the Improvement of Reading" tend to serve as a guide for the student to apply as a carry-over not only into each course he takes, but into his everyday life for what he does, for what he knows, for what he is.

1. Read
2. Read
3. Read some more
4. Read anything
5. Read about anything
6. Read enjoyable things
7. Read things you yourself enjoy
8. Read–and talk about it
9. Read very carefully–some things
10. Read on the run–most things
11. Don't think about reading, but
12. Just read.

The reading improvement program, therefore, is designed to have the student develop reading skills and interests so that he may effectively meet the reading tasks which are required in his educational, occupational, as well as recreational goals and objectives.

We realize, for the most part, that the student enrolled in our program knows how to read. For this feat we give much credit, for we are not going to teach him anything! What we will do, however, is through review show him how to use what he already knows that much better. How much is *that much?* Reach up to your head and single out one strand of hair. Feel the width of it. If we are able to extend reading skills or attitudes toward reading the width of that strand of hair, we have more than accomplished our objective.

ENTRY CRITERIA

All students enrolling at College of the Mainland are required to take a battery of appraisal tests. Included in this battery are the A.C.T. and the Nelson-Denny Reading Test. A composite score on the A.C.T. of less than 16 incurs a strong recommendation for Reading Improvement. A Nelson-Denny percentile of less than 20 on the total test makes reading improvement required. Between the 21 and 32 percentiles, the course is recommended. Above the 32 percentile, enrollment in Reading Improvement is purely optional.

The Nelson-Denny Reading Test is the unit of standardized measure used to determine how much progress a student has made in Reading Improvement. Figure I indicates the pre and post test percentile means for one hundred seventy-four students enrolled during Fall, 1972. One hundred two of these students were classified as non-developmental, while seventy-two students were classified as developmental.

Diagnostic Procedures

Regardless of the student's learning classification, *i.e.,* developmental or non-developmental, each student upon entering the course is given a diagnostic test, *Tactics in Reading II,* to determine specific weaknesses. As a result of scores in three areas of this diagnostic test: words in context, sentence meaning, and central idea, the student is placed in a phase. Phase I deals primarily with basic skills, phase II deals more with intermediate skills, and phase III stresses rate improvement.

Once assigned to a phase, the student works in both a prescribed area as well as an individualized area. His basic prescription includes a set of text and workbooks particularly chosen for his ability level. A series of phase assignments are to be completed either prior to the semester's end or before the student may move to the next phase. Depending upon the student's personal objectives and motivation, it is possible for him to complete his phase assignments early in the semester and be moved into the next phase. Growth in reading is continuous, and is stressed through high exposure.

Success through review of basics regardless of phase placement is stressed in the assigned text and workbooks. *Tactics in Reading I* and *II* are used for phase I and II students along with *New Modern Reading Skilltext, Books I and 2* for reviewing and expanding skills. In addition, *A Guide to College Survival* is used to give food for thought as well as constructive ideas and procedures for study techniques.

Phase III students who are more involved in increasing rate are also given extensive review of basic skills through the use of *New Modern Reading Skilltext, Book 3.* Study techniques are emphasized through *A Guide to College Survival* as it is with students in the other two phases. *How to Read Better and Faster* is the text used which gives practice and suggestions in the area of rate improvement. Along with the text is a series of taped broadcasts developed at College of the Mainland which

Figure I
Mean Percentile Readings on Pre and Post Nelson-Denny Reading Tests, Fall 1972

GROUP	Vocabulary Pre	Vocabulary Post	Comprehension Pre	Comprehension Post	Total Pre	Total Post
All students	15.6	21.3	15.0	19.4	13.2	18.4
Non-developmental students	18.3	26.6	17.4	24.6	15.1	24.5
Developmental students	11.8	14.0	11.6	13.4	9.6	11.3

further emphasizes the techniques and gives further practice in rate development.

AN OUNCE OF PREVENTION

Further diagnosis of each student is done through auditory and vision screening tests. More often than not, problems which affect progress in improving reading are directly related to vision problems. Therefore, the Keystone Telebinocular is used to check usable vision, lateral and vertical posture, fusion, stereopsis, and color perception at both near and far point positions. The E.D.L. Eye-Graph is used also to determine relative efficiency of the eyes as well as coordination and directional attack. A student found to be deficient in the vision screening tests are referred to an optometrist or opthomologist of his choice for further diagnosis and remediation.

It should be noted that this service of vision screening is not only available to students enrolled in Reading Improvement courses, but is extended to the entire student body, members of the faculty and staff as well. At present, arrangements are being made with the senior citizenry to extend this service to them.

Vision Therapy

Vision remediation may often be eye-training exercises with or without a lens prescription. For students involved in vision therapy, facilities are available in the Reading Center for administration of these exercises. It is stressed to the student that therapy will not be administered unless prescribed by an optometrist or opthomologist.

Auditory screening is done with the Maico Audiometer. As in the case with vision screening, remedial techniques are not done without a specific prescription from a doctor.

BEHAVIORAL SPECIFIED OBJECTIVES

Classes meet either twice a week for one hour and twenty minutes each session, or three times a week for fifty minutes each session. A typical

Figure II
Vision Therapy Exercises

EXERCISE	PURPOSE
1. Pencil push-ups	Singleness and clarity of vision
2. Fixation exercises	Training to fixate quickly and accurately with either eye
3. Rocket	Audio-visual technique to strengthen muscles in the eye
4. Base-in and Base-out	Problems associated with stereopsis as well as poor eye coordination
5. Parquetry--both small and large	Gives training in perceiving a whole while at the same time perceiving the parts which make up the whole. Increases visual-motor skills.
6. Puzzles	Similar to above: aids in increasing perception skills
7. Bip-Bop	Strengthens eye muscles
8. Letter tracking	Improves visual discrimination

week in the Reading Center includes individualized assigned work using the Controlled Reader, an S.R.A. Power Builder and Rate Builder, a Tach-X session, Study Skills Lab assignments, instructional film loops and broadcasts, as well as other material assigned for specific individaul weaknesses. A paraprofessional as well as two student lab assistants are available to give assistance, give a vote of confidence, or if need be, crack the whip.

As in the case for every other course on the campus, non-punitive grading through the systems approach using behaviorially specified objectives is used. Each student receives a Document which specifies the goals and objectives for the course and the means to achieve them. The objectives listed are divided into three categories: "C" Objectives–minimum competencies required to receive credit; "B" Objectives; and "A" Objectives. In order for a student to receive any of the above grades he must demonstrate his competencies as required by the Document which he received at the beginning of the course.

The implication of the grading system shown above is that all who enroll at College of the Mainland automatically pass each course because no grade of "D" or "Fail" is given. It is possible, however, for a student not to complete his objectives. If this happens, it is possible for the student to negotiate an "I-Contract" with the instructor for an extension of time to complete objectives. In the event the student does not complete his contract within the specified extended time, the "I" is changed to "WI."

Exit Criteria

The student's grade in Reading Improvement is determined by a specified set of objectives outlined in the student's document. It is stated that his grade will be based on the amount of improvement shown in the pre and post test batteries and the quality as well as the quantity of work done in the Center. The student who shows the most progress usually tends to use his time well, carefully checks and grades his work, studies his errors, asks questions when he doesn't understand, and makes up time when he has been absent. Lastly, reading and discussing a minimal number of books is specified. Regardless of the phase of the work assigned, the student is expected to demonstrate growth in the areas of study skills, spelling, visual motor skills, auditory skills, perception skills, and reading flexibility.

Figure IV indicates the minimal degrees of competency at suggested minimal standards a student must obtain in order to meet grade objectives. It is stressed to the student, and should be remembered, that a student who shows a tremendous gain in level of difficulty may not show a gain in comprehension. Maintaining his beginning level of comprehension at more difficult levels may be substituted.

Our objectives serve as guide lines to be realistically applied to each student in view of his reading skills. The instructor and the student set more specific guide lines in terms of materials and activities in order to meet these objectives.

Success Ratio

Total enrollment in Reading Improvement sections numbers 200 for the Fall 1972 semester. Non-developmental students numbered 126, while the number of developmental students numbered 74. Of the total 200 students, 110 or 55% were successful in completing the course. Sixty-three of the non-developmental students or 50% were successful in completing the course objectives. The greatest success ratio was shown in the developmental group where 47 or 63.5% were successful in completing the course.

Since reading, as we know, permeates each course on the campus, the Reading Improvement program has been designed to have the student develop reading skills and interests so that he may effectively meet the

Figure III
System of Grading at College of the Mainland

Grade	Significance
A	Superior achievement of course objectives
B	Outstanding achievement of course objectives
C	Achievement of minimum course objectives
I	Incomplete achievement of minimum course objectives at the end of the semester
WI	Withdrawal without achievement of minimal course objectives
W	Withdrawal for any reason, including difficulty in achieving minimum course objectives, within the first nine weeks of the semester
WP	Withdrawal with achievement of course objectives to date, including those students whose progress is satisfactory but who have to withdraw for reasons of illness or other personal problems

Figure IV
Suggested Minimal Standards to Meet Objectives

OBJECTIVES		MINIMAL DEGREE OF COMPETENCY		
		C	B	A
Study technique comprehension		80%	85%	85%
Average reading rate with comprehension	WPM	150-200 70%	200-250 75%	250-300 80%
Skimming technique	WPM	250 50%	300-350 60%	350-400 70%
**Book discussions		5 books or 1000 pages	6 books or 1200 pages	7 books or 1500 pages

**Figures shown for this objective reflect those for Phase I. For Phase II add an additional book in each category or an additional 300 pages per category. For Phase III add two additional books in each category or an additional 500 pages per category.

Figure V
Grade Distribution for Students Enrolled in Reading Improvement During Fall 1972

	Grade Received							Enrolled	Pct. Pass
Group	A	B	C	I	WP	WI	W		
All students	41	33	36	18	16	46	10	200	55.0
Non-developmental	33	15	15	12	06	36	09	126	50.0
Developmental	08	18	21	06	10	10	01	74	63.5

reading tasks which are required in his educational, occupational, as well as recreational goals and objectives.

By his exposure in the Reading Resource Center, as described above, the student may carry over his new skills into each course he takes into his everyday life for what he does, for what he knows, and for what he is.

THE ACADEMIC ADJUSTMENT OF WOMEN RETURNING TO COLLEGE: AN INNOVATIVE STUDY SKILLS PROGRAM FOR THE MATURE ACADEMIC WOMAN

Isadore Rosenberg and Minnette Gersh
Los Angeles Pierce College and East Los Angeles College

SCOPE OF THE PROBLEM

In 1971 The Women's Bureau of the United States Department of Labor published a pamphlet on the abrupt rise in the number of mature women, that is women over twenty-five, seeking a college education. Although the statistics were incomplete pending the compilation of the 1970 census, the available statistics are enough to indicate an incredible rise. Between 1950 and 1969 school enrollment for women 25 to 29 years of age rose from 26,000 to 311,000. In the same period enrollment for women 30 to 34 years of age rose from 21,000 to 215,000. No information was available on women above 35 but a similar rise to the other age groups was predicted by the Labor Department. (6:1-13)

CAUSE OF THE INCREASE

The cause of this increase cannot be traced to any one source but undoubtedly some of the causes can be reasonably surmised. One factor has been the move by the Federal Government to better use human resources. Another great impetus to the mature woman was Betty Friedan's, *The Feminine Mystique.* This changing attitude was further reinforced by numerous articles in popular women's magazines which encouraged them to enrich their lives with education. (7; 8; 9; 10; 11; 12; 14) Finally, Colleges and universities by responding to the demand for special programs geared to mature women, further stimulated the women to pursue more education since programs now better suited their special needs. Today the Department of Labor reports more than 350 colleges and universities are currently sponsoring special courses for mature women. (6)

THE PROBLEM: THE RETURNEES SPECIAL NEEDS

Unfortunately, women thinking of returning to school are discouraged by their own fears of failure. Although academic authorities generally agree that mature women do extremely well in school (2:78; 3:77; 5), many women are so afraid of failure that such encouraging statements only lend greater feelings of anxiety to their own lack of confidence. Gillotti, Schifter, and Schwartz feel "speed reading and study skills courses are excellent preparation" for the returning student. (2:143)

SOLUTION: THE MAW PROGRAM

The concept of a special study class at Pierce College, that would be designed for women returning to college (the *M*ature *A*cademic *W*oman's program), was the result of interviews conducted at the Pierce Academic, Diagnostic and Motivation Center (A.D.A.M.) between 1969 and 1970. (16) It was found that the chief concern of the woman returnee was to find a way to use academic tools and to reinforce her self-confidence, factors which correlated with other research cited in this paper. (4:30; 3:19; 11:47; 2:143)

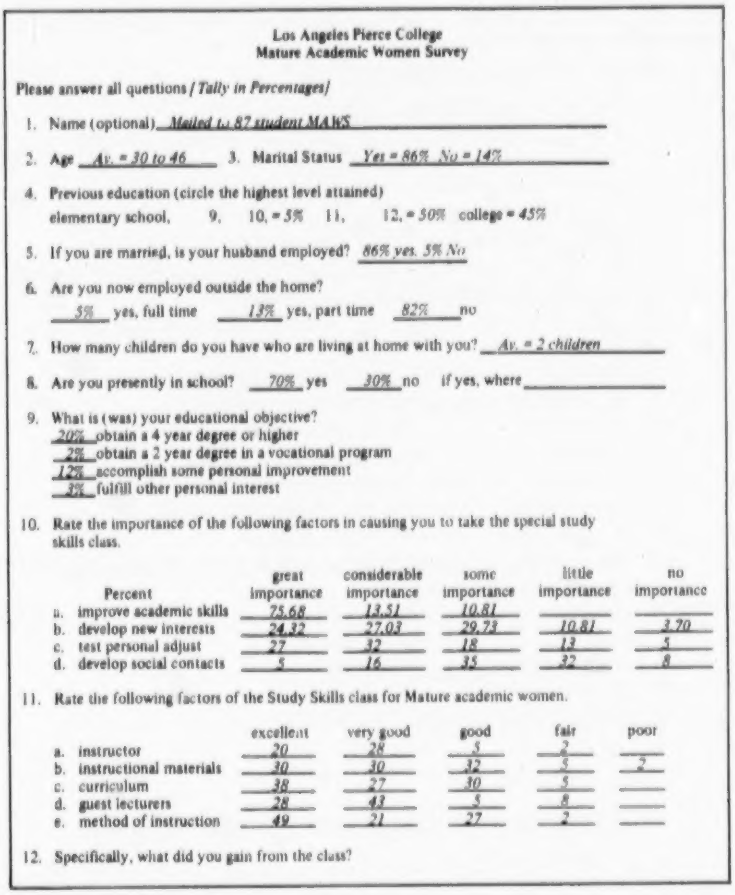
The major problem these women returnees faced was adjustment to the informal atmosphere of the classroom and to the individual differences of the instructors. Another problem was the possibility of failure. The mother of a family feels that she can't fail in this venture because she must set an example for her children. She is also concerned because she wants to show her abilities to her husband. Many women feel that their education has been interrupted, and now they need to catch up intellectually and culturally, as well as prepare for a career. (16) As a result of these feelings it was evident that a specially designed course on "how to make it in college" was necessary for this group of women seeking an education.

AN EVALUATION OF THE PROGRAM

A follow-up study of the M.A.W. program after two semesters with a male teacher, and two semesters with a female teacher, showed that the experimental group (the M.A.W. students) had two major advantages over the control group. (15)

The experimental group gained self confidence through the continued motivation of the instructor to complete their college work. With the aid of the counselling staff, the instructor redirected some students to other community educational facilities where they could get help finding success and personal fulfillment. Another positive result was that students learned how to study without fear and frustration.

The study also indicated that as a result of the M.A.W. program, students reflected positive attitude change about themselves and their ability to cope with college work. Of greatest importance to the students in the study was the improvement of their academic skills. Their voluntary comments indicated a strong feeling of increased self-confidence, and that they were better able to identify with a female instructor with a family, therefore, creating a better atmosphere in which to work on their problems.



Los Angeles Pierce College
Mature Academic Women Survey

Please answer all questions ***[Tally in Percentages]***

1. Name (optional) *Mailed to 87 student MAWS*

2. Age *Av. = 30 to 46* 3. Marital Status *Yes = 86% No = 14%*

4. Previous education (circle the highest level attained)
elementary school, 9, 10, *= 5%* 11, 12, *= 50%* college *= 45%*

5. If you are married, is your husband employed? *86% yes. 5% No*

6. Are you now employed outside the home?
5% yes, full time *13%* yes, part time *82%* no

7. How many children do you have who are living at home with you? *Av. = 2 children*

8. Are you presently in school? *70%* yes *30%* no if yes, where ____

9. What is (was) your educational objective?
20% obtain a 4 year degree or higher
2% obtain a 2 year degree in a vocational program
12% accomplish some personal improvement
3% fulfill other personal interest

10. Rate the importance of the following factors in causing you to take the special study skills class.

Percent	great importance	considerable importance	some importance	little importance	no importance
a. improve academic skills	*75.68*	*13.51*	*10.81*		
b. develop new interests	*24.32*	*27.03*	*29.73*	*10.81*	*3.70*
c. test personal adjust	*27*	*32*	*18*	*13*	*5*
d. develop social contacts	*5*	*16*	*35*	*32*	*8*

11. Rate the following factors of the Study Skills class for Mature academic women.

	excellent	very good	good	fair	poor
a. instructor	*20*	*28*	*5*	*2*	
b. instructional materials	*30*	*30*	*32*	*5*	*2*
c. curriculum	*38*	*27*	*30*	*5*	
d. guest lecturers	*28*	*43*	*5*	*8*	
e. method of instruction	*49*	*21*	*27*	*2*	

12. Specifically, what did you gain from the class?

A specific breakdown of the results of the follow-up study can be found at the end of this paper.

COURSE CONTENT

The course of study for the class was made more palatable via the utilization of special teaching techniques for taking notes, making class oral reports without embarrassment, writing term papers, learning how to use the library, adjusting to the new atmosphere of the college classroom, utilizing acceptable academic etiquette, and maintaining a balanced schedule of housework and homework. Without these aids a class of mature academic women (averaging between the ages of 25 and 45) would have faced the possibility of tragic failure.

Some of the special assignments were:

1. Students visited classes of interest to them
2. Practiced note-taking from a variety of instructors on campus
3. Started a "Personal Research File" for future term paper writing
4. Interviewed an instructor for biographical information
5. Prepared a sample term paper, step by step
6. Studied methods utilizing a tape recorder
7. Practiced note-taking from tapes from a variety of disciplines
8. Prepared a housework-homework schedule
9. The class was visited by campus administrators and selected instructors
10. Students maintained a daily reading improvement record
11. A variety of guided library research projects
12. To transfer learned skills to children
13. Build vocabulary through family involvement
14. A problem-discussion seminar between class and instructor
15. The building of a community library bibliography
16. A report on an interview with a counselor
17. An analysis of logical thinking and exercises in spotting fallacies in propaganda techniques
18. An evaluation of academic potential through the use of a variety of proven tests and inventory materials
19. Video taped class presentations
20. An interview with a woman teacher on campus
21. To organize a course portfolio for future use

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The M.A.W. program is a specially designed program for mature academic women who wish to return to college after a leave of absence from the academic field. Its purpose is to provide an adjustment period in which the returnee could gain confidence and improve rusty study skills. Although we understand that the initial anxiety on returning to school is normal, it is our feeling that such anxiety is an unnecessary burden for a person faced with changing her life environment. In addition, women who might otherwise have not returned to college because of fears of failure did return and are now doing above average work in regular classes. As shown in the follow-up study, this program has successfully met the problems faced by returning women, and, therefore, we suggest that all schools consider a similar program to help encourage women to improve their job potential and grow as individuals through returning to college and completing a degree.

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A STUDY TO DETERMINE THE EFFECT OF PEER TUTORING ON THE READING EFFICIENCY AND SELF-CONCEPT OF DISADVANTAGED COMMUNITY COLLEGE FRESHMEN

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INTRODUCTION

Tarrant County Community College is increasingly serving many young people who traditionally have not sought post-high school educations. These students tend to be disadvantaged in one or more ways.

An attempt to bridge this "gap of disadvantagement" and keep the open door from becoming a revolving door is sought through the Basic Studies program, which has these characteristics:

1. It is a one-year college-level program in general education providing individualized attention by instructors and stimulating close personal association among students.
2. The instructional program is student-centered and employs techniques of flexible scheduling, team-teaching, and an integrated curriculum; and
3. Students participating in the program have achieved little academic success in the past, have low predictor scores (lower quartile) on the ACT, and are enrolled in full-time study.

Evaluations of the Basic Studies program over the last four years have shown that ninety-five percent of these students have moderate to severe reading deficiencies. Therefore, the reading program is designed to develop reading skills as well as the *desire to read.*

Prior to this research, experience in the Basic Studies reading course emphasized a major dilemma in working with the underachieving college freshman—he needs individualized instruction, but his limited motivation and skills make self-instruction frustrating, inefficient, or ineffective. When he makes a mistake or encounters something he doesn't understand, he stops working.

Few of these students will admit that their *basic* reading skills can be improved. They are willing to take "speed reading," but insist that they need no other reading skill improvement.

The college study carrel makes the physical or psychological need for sleep easier to attain. The total Basic Studies program has used small or large group work to occupy much class time in order to assure that the student remains involved in the assignment.

These students were frequently the ignored or isolated class members in the past. Both academic and social progress often depends on their "belonging," their group acceptance and participation. So, for this reason, too, large or small group work has occupied much class time.

The desirable individualization of a reading course is rather easy with the myriad of self-instructional, multi-level materials on the market. However, those published materials are often found in every grade of public schools and the college freshman literally demands something different. Also, the commercial materials are replete with short learning activities followed by a "progress check." To the disadvantaged student the progress check is a test and he hates tests. When he must test himself every fifteen or twenty minutes he simply refuses to function, copies answers from the key or hedges in some way.

In summary, it was concluded over a period of four years of actual experience with the Basic Studies students that the traditional classroom did not work and that the traditional lab for reading did not work either. The students did indeed need individual attention, but not individual assignments or machines to struggle with alone.

It seemed that the availability of tutors in the classroom would be ideal since the course could be individualized while providing everyone with personal attention. Thus, the project with peer tutors was initiated.

METHODS

The purpose of this project was to determine the extent to which a peer tutorial program could contribute to improving reading efficiency and raising the self-concept of disadvantaged community college freshmen. This project was structured in order (1) to determine the extent to which it supplements the regular instructional program in reading, and (2) to determine the extent to which the tutorial program results in an improved self-concept attributal to a tutorial program. Both reading and self-concept growth was measured with students serving as tutors (Group E1), (Group E2a) and subsequently becoming a tutor (Group E2b).

In addition to the three groups identified above, a control group (Group C1) served as the criterion group for testing. Group C1 was comprised of Basic Studies students who were enrolled in a program identical to the E groups, except for the peer-tutorial reading aspect. Approximately eighty students were involved in the project during the 1971-72 school year. (Figure 1)

Standardized and Informal Tests

The following tests were submitted to the clearance committee in the National Center for Educational Research and Development and approved for use:

Figure 1
The Experimental and Control Groups

E1	E2a	E2b	E3	C1
Tutors	Tutees	Tutors	Tutees Only	Control
Fall, '71 N = 17	Fall, '71 N = 23	Spring, '72 N = 20	Spring, '72 N = 21	Fall, '71 N = 21

1. *The Diagnostic Reading Test*–Survey Section, Forms H and A
2. *The Sequential Test of Educational Progress–Redding*, Forms 2A and 2B
3. *Tennessee Self Concept Scale*

The Tennessee Self Concept Scale was not acceptable to the clearance committee until six items, which were declared self-incriminating, were struck. The deleted items are as follows:

1. I am a bad person.
2. I am a moral failure.
3. I am losing my mind.
4. I despise myself.
5. I shouldn't tell so many lies.
6. I sometimes use unfair means to get ahead.

These items were literally struck from the test booklets before the students took the tests. The "total positive" scores on the pre and post tests were used in the final analysis. The five subscores were also used. "Self-criticism" and "conflict" scores were not used in the final analysis.

The information from disadvantaged students' standardized tests was supplemented by informal, teacher-made inventories. The investigator used the following informal data-gathering instruments:

1. Student Personal Data Sheet
2. Reading Autobiography
3. Attitude-Interest Inventory (a sentence completion activity)
4. Physical Inventory

The information about a student's schedule, interests, attitudes, perceived problems, assessment of strengths and weaknesses, and goals was used by the investigator in prescribing an appropriate reading program for the student. Information of a general nature, not confidential, was available to the tutor.

Many students dislike standardized tests, but the TCJC disadvantaged college freshman has feelings stronger than dislike. Under the most favorable conditions some students becpme angry, refused to read the questions before marking an answer, completed the test while anticipating "failure," or froze on both pre and post forms of the standardized test. Some expressed deep resentment at being required to take so many tests before being admitted to college and then again upon entering college. They did not like being used as guinea pigs through tests. The students who were involved in this research were prime subjects for other studies. In addition to the tests required by the investigator, two doctoral students, the Southern Association for Schools and Colleges self-study committee, and the team counselor were asking them to complete tests and questionaires. The project's test results should be interpreted with this in mind.

The Tutors and Tutees

There were two groups of tutors for the project, the seventeen students who had had one semester of reading instruction in the Spring, 1971, and the twenty-four students who during Fall, 1971, received the tutoring and training to become tutors for the Spring, 1972.

The first tutors were telephoned by the Basic Studies counselors in the summer. Most of the students indicated to the counselors that being given the responsibility and opportunity to tutor was the positive determining factor in their returning to college. These tutors were *not* selected on the basis of their level of achievement in reading. They had had one semester of Basic Studies reading and were returning to school to complete the program.

It was difficult to get twenty volunteers to agree to being tutored. The reason for this was expressed quite freely. These students were academically unsure of themselves. They suspected that once again, an educational institution was subtly implying that they were incompetent students who needed special help. It is certain that these twenty students would not have volunteered unless they had been promised that after one semester they would become tutors.

Tutors and tutees were paired within their sections. The tutors were allowed to study the diagnosis of their tutees so that they would be able to review in advance the materials which they would be teaching. Only two guidelines were used in assigning tutor to tutee:

1. The tutor had to have better total scores on the DRT and STEP than his tutee.
2. Both had to be enrolled in the same section.

The stigma of being tutored was so great that during the first week of school the students verbalized their negative feelings about any newspaper coverage and also requested that the title "tutor trainee" replace "tutee."

In-Service Training for Tutors

The teacher planned and conducted the one-hour in-service meetings for tutors which were held weekly. Tutors were paid $1.60 per hour for their two hours in the classroom and for their weekly in-service meeting.

The tutor in-service meetings are vital to such a program. The feedback from the tutors concerning student attitudes, materials, approach to learning and teaching, and their personal feelings were invaluable. The course objectives were expanded. It seemed that after a period of success with the special guidance from a tutor, tutees began working faster and with added confidence. The individualized program became more effective with the disadvantaged freshman after eight weeks of college provided him with the attention, success, and personal orientation or the reasons for such an approach. These students entered college believing that learning is extremely difficult and they were highly suspicious of any approach which made learning enjoyable or easy or which gave them a different task from some other class member.

CONCLUSIONS

Reading

1. Tutees vs. control indicates no significant difference in reading gains of the two groups receiving instruction.
2. Students do score higher on DRT vocabulary and comprehension subscores when group instruction is supplemented by peer tutorial instruction (E2a, E3) when compared to students who do not receive assistance (c1).
3. Students do score higher on the DRT subtests of rate, comprehension, and vocabulary, and the STEP-READING total score when group instruction is supplemented by peer tutorial instruction (E2a, E3) when compared to the original group of tutors (E1) who received no tutorial assistance.
4. Students who serve as tutors (E2b) make greater gains in most reading skills while serving as tutors than while being tutored (E2a). In other words, the students who are given tutoring responsibilities progress more as "teachers" than as "teacher trainees" or students.

Self-Concept

5. Those students who serve as reading tutors (E1, E2b) do improve their self-concept at a significantly higher level than those students not involved with tutoring (C1).
6. Those students who are tutored (E2a, E3) in reading do not improve their self-concept at a significantly higher level than do other disadvantaged students who do not participate in the tutorial program (C1).
7. Students who serve as tutors (E2b) make greater gains in every area of self-concept while serving as tutors than while being tutored (2a). In other words, the students make greater self-concept gains in the role of "teacher" than in the role of "teacher trainee."
8. Experience with a tutoring program for both the director and the students involved brings about greater success in both reading and self-concept development, as indicated by the difference in Fall and Spring scores. Better gains were made during the second semester of the project.
9. The student's experience as tutee before becoming a tutor is better preparation for the job than simply attending in-service sessions. The Spring tutors (E2b) made better reading gains while serving as tutors

than the previous group of tutors (Fall, E1). They led the Spring tutees (E3) into better gains than they themselves had been led into.

RECOMMENDATIONS

1. There is no standardized reading test which tests the underachieving community college freshman adequately or fairly. New tests need to be developed.
2. The greater reading gains made by the Spring tutors and tutees could have been affected by the curriculum and materials, changes suggested by the Fall students. Most of the materials used in the Fall were traditional lab supplies and easier than typical college-level reading. The materials used in the Spring were written for community college students and more closely approached the interest level of freshmen as well as their concept of what college material is supposed to be. The investigator now believes that with the disadvantaged or low-achieving community college freshman it is better to thoroughly teach with a great deal of easy material. Whereas the more mature or academically-sure college student is willing to practice reading skills with almost any material, the academically uncertain or unskilled student will become defensive. This will adversely affect both his reading progress and his self-concept.
3. To give the students a voice as to the materials they will use and the sequence in which they will use the materials is recommended. Comparing their skill sequence recommendations with their standardized tests gives additional insight into the student's perception of needs, interests and self-concept.
4. Since tutors and tutees from the same class reduce scheduling problems, such an arrangement is recommended whenever possible.
5. Peers who know each other well may not work at the task seriously. It may be wise for the tutor and tutee to begin as strangers.
6. Tutor in-service meetings are highly recommended:
    a. to give confidence to the tutor
    b. for discussing the difficult one-to-one relationship especially where there is an age, maturity, or experience gap.
7. To counteract the possible decrement in tutee self-concept, give those students special responsibilities of a similar nature of equal importance and status to tutoring.
8. A seventy-two hour reading program which is spread over a full two semesters may get smaller gains than the shorter reading course covered in a shorter time period. However, the gains made over the long period of time may be more realistic. This should be considered in classroom experiments.
9. To simply implement a research project such as this one, to teach subskill to one student, or to work for far-reaching results which lead to the needed breakthroughs in education, the teacher must be given the freedom to fail. The teacher who is given that freedom must also be ready to accept it. Only then will risk-taking and creativity be possible.

PINPOINTING PROBLEMS AND PREPARING APPROPRIATE LEARNING PACKAGES

Sarah G. See
Westinghouse Learning Press

A MODEL OF COMMUNICATION SKILLS DEVELOPMENT

To see what we are dealing with in trying to work out new approaches to remediation for college students or for other mature learners, I would like to begin with a broad diagram of the language arts as they are acquired by most children.

Some assumptions must be made. First, let's assume that Figure 1 is a reasonable division of the major components or the language arts–speech, reading, and writing. Listening should also be included, but to simplify this diagram, let's assume that listening is covered by a broad interpretation of each of the areas included.

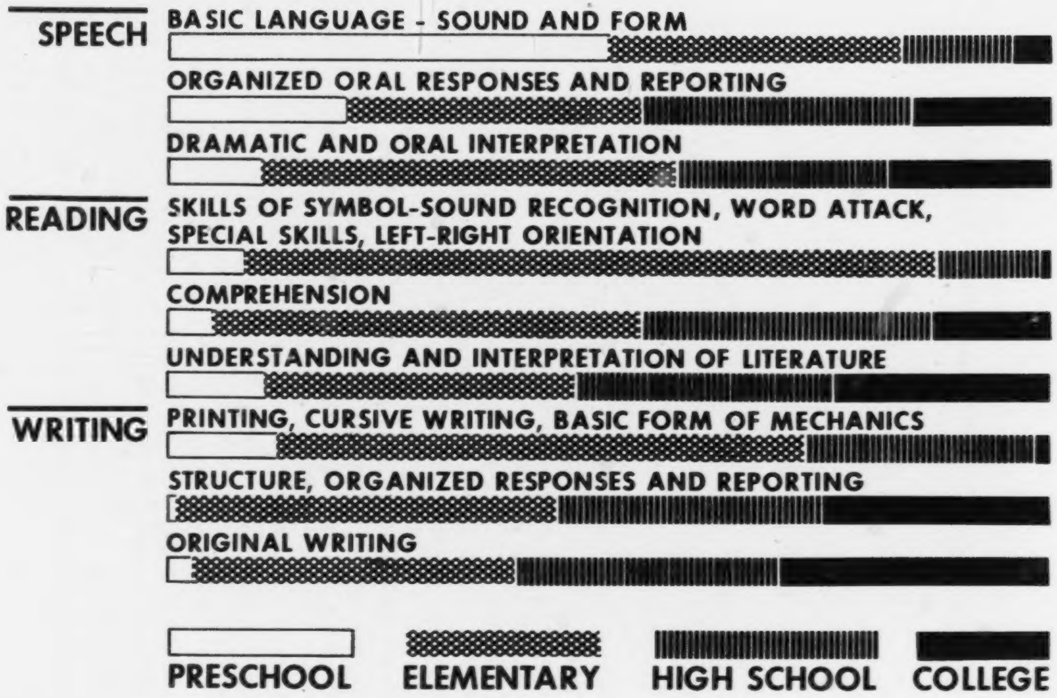
Second, let's assume that each of these areas–speech, writing, and reading–can be divided into three levels of performance, The first level comprises psychomotor skills and the most basic cognitive level, knowledge. In speech, for example, this level includes the ability to make appropriate sounds, to associate spoken sounds or words with meaning, and to speak in simple sentences. The second level deals with application, the ability to use skills and knowledge to achieve communication–verbal input and output in generally accepted forms. Ability to make appropriate written responses to questions and to prepare reports are examples of Level 2 in the area of writing. At Level 3, analysis, creativity, and interpretation, and judgment are exemplified in reading through the study of literature.

Third, individuals usually learn these various elements of language in a sequence of stages. Among the general population, learning takes place somewhat according to the timetable shown by the shaded areas. The precise pattern of the sequence of learning, however, varies from school to school and from home to home, with the result that one level of instruction does not necessarily begin where the last learning level ended.

DEVELOPMENTAL PROBLEMS

We may be able to say that a given student is at a certain grade level in any of various elements of the basic components of language arts.

Figure 1


SPEECH
BASIC LANGUAGE - SOUND AND FORM
ORGANIZED ORAL RESPONSES AND REPORTING
DRAMATIC AND ORAL INTERPRETATION
READING
SKILLS OF SYMBOL-SOUND RECOGNITION, WORD ATTACK, SPECIAL SKILLS, LEFT-RIGHT ORIENTATION
COMPREHENSION
UNDERSTANDING AND INTERPRETATION OF LITERATURE
WRITING
PRINTING, CURSIVE WRITING, BASIC FORM OF MECHANICS
STRUCTURE, ORGANIZED RESPONSES AND REPORTING
ORIGINAL WRITING
PRESCHOOL
ELEMENTARY
HIGH SCHOOL
COLLEGE

Generally speaking, a grade assessment works fairly well in elementary school; in high school it is not quite so useful, and by the time a student reaches college, his difficulties cannot be categorized so neatly. There are gaps and misconceptions that must be corrected. He has used the years of drill and practice and review of the same old material to fix erroneous patterns or to turn himself off completely. His skills have been adequate to get him this far. He may have acquired such listening skills, for example, that he never needs to read; his rote memory may be highly developed, and he may be a master at "conning" his instructor. He has found loopholes to wiggle through, some of them slightly dishonest perhaps, but somehow he has managed to get a high-school diploma and to enter a college with that minimal requirement. In some cases, he has merely reached the age of eighteen and may therefore enter through an absolutely open door.

DESIGNING REMEDIATION

Now what can be done to keep that open door from revolving and booting him out? Can we go back and try to remediate by grade level, doing things over? If we bore him once again with the same old stuff, he may drop out or, by dogged determination, continue through the same material over and over gain, completing various exercises satisfactorily but still failing to relate the memorized rules to his own communication problems. Repeating is not a remedy for him because there has been no real diagnosis of what those communication problems are.

It may not be possible to give a complete diagnosis at first. Although you may not discover whether the student's overall reading is at a specific grade level, at the very least you must use a diagnostic approach that breaks reading into subskills. Some of these subskills are ignored in diagnositc tests of college students. Frequently the tests given have a sixth-grade level floor. If this is true, further diagnosis is essential for students who score at that level so that you can determine whether they need help at a more elementary level. Work on comprehension and speed are second priorities if a student lacks basic skills in auditory discrimination and audio-visual association that can get him started in the decoding process. If his handicaps in word-attack skills are extensive, reading—though possible—may be just too much of an effort.

If you do discover such elementary problems, are they all-encompassing? Does the student have trouble with the beginning, middle, and ends of words or with just one of these? Does he have trouble only with certain consonants or vowels? If so, he does not need a complete course in phonics, particularly the kind that includes those badly illustrated books grounded in *cat* and *bat*. He needs to be working with the kinds of words he meets in his college courses. He needs more than just the skills to help him with one-syllable words; he needs decoding techniques that will let him unlock any words.

Too few programs exist that pinpoint student problems; even fewer are the programs in which the student is assigned very selectively the materials he needs. Some materials—like the McGraw-Hill Basic Skills set, the SRA reading kits, and the Follett English H card series—all have some of these aspects of diagnosis. At Westinghouse Learning Press we have begun to tackle certain of these problems. You as the instructor, however, have to do a large part of the job, primarily because people are unique and generate unique problems. Each person has his own perceptions to begin with, and he perceives language in a unique way. But patterns do exist; your challenge is to train yourself to find the patterns. I have some sample problems here that may help us see how we can go about diagnosing what is wrong and prescribing remedial help.

Many times we feel that student errors are due to carelessness. Over and over, those red notations on a student's paper are question marks or the word *careless*. Why not take the time to see what kind of carelessness it is? Sometimes it isn't carelessness at all.

One of the major difficulties lies in knowing where to begin. Students are sometimes awash in a sea of red ink that makes them feel hopeless. They are discouraged because they have no idea where to begin to help themselves.

One way to help is to try to analyze a given passage for problem patterns. You can give the student a more efficient program of remediation by starting in an area that leads to eliminating a whole cluster of problems. You can then set priorities for dealing with problem areas one by one. (In the WCRA presentation the following material was handled as a workshop—each group received a different sample, one copy for each member, and was asked to discover an error pattern of at least three related items, to suggest the reason for the problem, and to plan remedial activity for the specific area. Each sample was then shown on the screen and discussed.)

In each of the samples below there are a number of errors; each has at least three errors that are related, though not obviously so. By identifying patterns and analyzing why they occur, you can select or develop an activity for the student.

Sample 1 is comparatively easy to diagnose, for almost all of these errors are the result of an overdose of phonics.

> *I think the man in the family should ware the pance. My reson is that we all reddy have to many women acting like men and viseverca.*

The student has learned that certain letters and letter combinations sound a certain way, and he can now put letters together in any combination that suits him; *ware, pance, reson, reddy, to,* and *viseverca* are all examples. A standard approach to spelling is not going to help; long lists of homophones are not going to resolve the *ware/wear* or *to/too* confusion. Instead, a student needs to reconsider spelling as an encoding process—sound to symbol—instead of its opposite, the symbol-to sound decoding process. He needs material that deals with the specific sound-symbol difficulties we see in Sample 2: the /ts/ sound, the /ē/ sound, the /e/ sound, the /oo/ sound, the /ā/ sound, and the /s/ sound. A tape-worksheet combination or a short sequence of programmed instruction could be selected for him. *The Relevance of Words: An Individualized Approach to Spelling* is non-sequential and is designed to allow you to select only those elements for which the student demonstrates a need. You can use many traditional texts to this end also by referring to the index.

Sample 2 presents several interesting problems, but the one with the pattern involves *look, keep, expect,* and *borrow.*

> *She look at him all the time. She keep asting him if he expect she to give him her money. Last year she borrow money from me which she hasn't never payed back.*

You may immediately say that the first three are a matter of subject-verb agreement and *borrow* is a problem of tense. This may be true, but it is more likely that all four errors reflect a speech pattern that omits inflectional endings on verbs. If you try to explain the *s* added to third-person-singular verbs in terms of subject-verb agreement—especially if you emphasize plurality of subjects—you may end up with at least one student who retains the fact that *s* is a sign of the plural form and carefully puts *s* on every verb that has a plural subject. By grouping verb endings and relating them to speech patterns, you may be able to treat a whole mass of gross errors as a manifestation of just one problem. This student needs to hear, see, say, and write endings in context. The student may have an overall problem with inflectional endings, and you may decide to include noun endings in his remedial assignments. On the other hand, closer examination may let you diagnose more specifically: the ending sounds in Sample 2—/k/, /p/, /ct/—followed by *s* are hard to say. The ending sounds /sp/, /sk/, and /st/ followed by *s* are even more difficult. If you observe these specialized patterns, give the student specific drill on the diagnosed problem instead of boring him with practice on all combinations.

> *If you expect any graditude I'd say your talking about a thing of the path. You have to reframe from using the standers you grew up on.*

Sample 3 suggests that the student probably has serious reading problems related to basic word-attach skills. He needs training in auditory discrimination and audiovisual association. I would suggest additional testing to give a better fix on whether his problems are general or whether he has difficulty with specific sounds only.

The *d* for *t, th* for *st* and *m* for *n* are quite common consonant shifts. The ordinary diagnosis of spelling error will not help this student. He actually believes that these words are spelled this way. A tape-worksheet, however, can be prepared given examples of the shifts he makes, and he can be encouraged to tape his own voice, emphasizing the differences between sounds.

After this much practice, I expect you to pinpoint a diagnosis quite easily for each of the next two samples.

> *Last week I encounted a strange lady. She talkt to me a long time and said indepence and iniative is the most important things to have. With all that happing in todays world, you need them if your dream in remaing on top.*
>
> *I am just strating to beleive that I can make it in colledge. It is really something esle when all your life you have amied toward being a disk jocky in boardcasting and you know you can't make it.*

If I had presented these samples first, I am sure you would have given the blanket diagnosis, "spelling." Now, however, you have probably taken a closer look and discovered that the problem predominating in Sample 4 is omitted syllables. Auditory discrimination in listening for number of syllables may be a tool for remediation here. Practice in dividing syllables and in pronunciation may help. The confused ending of this sample may serve as a warning against over-confidence in diagnosis. You would have trouble trying to pinpoint the problem without asking the student what he intended to say. Perhaps he omitted *is* or substituted *in* for *is* or meant *in* as part of *dreaming* (which indicates *your/you're* confusion.) Diagnosis without getting the patient's side of the story can be dangerous–you may send him off with the wrong medicine for the real illness–in an entirely wrong direction.

Sample 5 is riddled with reverses. Both Samples 4 and 5 reveal problems that involve reading as well as writing and cannot be treated in isolation. If the student reads his sample aloud, recording on tape, and then listens to it, he may see his own problem. A nonsense word game using reversals can give some students an extra lift of humor. Students who have made reversals with *broad* and *board, trap* and *tarp, clam* and *calm* might be asked to draw cartoons that illustrate the humor of such reversals.

SUMMARY

Because development of materials depends so much on your cleverness at diagnosis, I have stressed diagnosis far more than preparation of material. No remedial program at this level covers all problems. Any program that even begins to present comprehensive remediation must be designed to allow you to select elements from it and reorder them to meet individual needs. You will find that there are always unmet needs for which you must provide supplementary learning activities.

If enough of us work at this task, our combined efforts will eventually result in a bank of material that will enable us to develop individualized programs dealing efficiently with remediation in the broad range of communication skills.

EXPERIMENTAL APPROACHES TO SERVING BLIND AND VISUALLY HANDICAPPED STUDENTS IN THE JUNIOR COLLEGE

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In an effort to implement the philosophy of community and junior colleges that service to the student is a primary goal, the San Antonio College Reading Department has developed an experimental approach in providing services for blind and visually handicapped students. The program is predicated on the belief that these students can participate more fully in the academic and social life of the college if compensations can be arranged to offset their visual deficiencies. Therefore, the goal of the Reading Department has been one of providing services that will facilitate learning while at the same time develop independence as these students make the transition from high school to eventual vocational goals.

The services provided include those of providing appropriate equipment and materials, developing skills and competencies needed by adult blind and visually-handicapped students, and providing liaison for other support services in the college and community. The services in all cases are designed to help make the student less dependent on others in his functions as a student in the college settting.

EQUIPMENT AND MATERIALS

Resources in terms of substantial investments in materials and equipment are available for the students to use during the entire academic year as needs arise. Most college textbooks are not available in Braille from any source, and many are not even available on tape. At SAC blind students are given the same course requirements as other students, including textbook assignments. Student readers are theoretically available, but this arrangement is not always advantageous to the blind student for two reasons; in some cases readers are not available when assignments need to be done and student readers are often slower than the blind student would like. Taped books are the next best answer and many books are taped by former or retired professors for use by students when not available quickly from national braille recording services. Tapes are provided by the Reading Department, recorders and editing by the Audio-Visual Department and reading by volunteers. For all the totally blind students at SAC, Braille is used extensively for intensive study, especially in such courses as Spanish and English grammar. The students seem to especially need to be able to read and go over these materials in Braille, so the college provides the paper for volunteers to Braille essential textbooks. A college textbook transcribed into Braille is often twenty or thirty volumes long and has taken thousand of hours of time to Braille, so only texts considered essential are Brailled. The students, of course prefer the Brailled texts because they can work completely independently in them, and we regret that we cannot provide all their texts in Braille. Also available in Braille are course outlines and handouts which are sent to the Reading Department for Brailling for the students.

One of the most popular services among blind students and their professors in the various departments is the Brailling of professor's tests to be given at the same time as those for sighted students. Previously, the professor had to arrange for an oral exam or for the student's reader to give the text which was time-consuming and not always controllable in terms of test equivalencies. Now the professor sends a print copy of the test to the Reading Department and the test is Brailled. Then the student can take the test with the class, typing his answers on a portable typewriter so that the professor can read it. More often than not, however, the Brailled test is given to the student in the resource laboratory in the Reading Department where either standard or electric typewriters are available. The student's typewritten answers and the Brailled test are then sent to the academic professor for grading. This arrangement enables the student to compete on an equal basis with other students.

The resource laboratory available to the students from eight until four o'clock every class day provides the students use of various types of equipment needed for them to function equally with those needing only paper and pencil. As previously mentioned, both standard and an electric typewriter are available for students to type work to be handed in. All work assigned to be graded is typed by the students themselves since most have used the touch typing system since primary grades. At one time students may be working on English, Spanish, government or sociology assignments for different professors. Braillers are also available for work the students need for themselves, such as notes for speeches or research papers, etc. Both reel-to-reel and cassette tape recorders are in constant use, generally with earphones for individual work. Students often tape lectures in class and then come to the lab and take notes on the tapes on the Braillers. A large print typewriter is available for those students who can use it. There are also Talking Book machines for outside reading assignments and an Language-Master which is usually used for vocabulary assignments, with words written in both large print and Braille and pronounced on the tape. The lab also contains a Brailon ThermoForm machine which can copy Braille on to plastic sheets from a master Braille copy.

Another type of equipment provided to help make the students more self-sufficient is the groups of books, tapes, and records used to develop the specialized skills these students need. There are Braille and print copies of the books used to teach the standard Grade Two Braille as well as the

Nemeth Mathematics Code. Books and records and tapes are used to teach touch typing by the oral method to those students who need this skill. There are also books on teaching the abacus to blind students and Braille vocabulary and library books.

SKILL DEVELOPMENT SERVICES

In addition to the equipment and materials, the Reading Department provides instruction in the various skills needed by these students in order to be successful, fully participating college students. Grade Two Braille is taught to those who become blind as adults and to those who are interested in becoming transcribers. Already mentioned is the touch typing by the oral method, which is also available to other students with cerebral palsy or other handicaps who could not participate in regular typing classes. Emphasis is on typing thoughts directly on the typewriter so that the typewriter becomes the equivalent of the pen or pencil to other students. Accuracy is stressed rather than speed. Students who are not proficient on the slate and stylus for taking notes in Braille are given this instruction. The abacus is also taught to those students who will need to use the abacus in further training. Each student is encouraged to develop any skills he can so that he will not be dependent on others for his work.

A major part of the skills development program is mobility training. Students are given instruction in campus layout through a three-dimensional braille-marked model of the campus. In addition, they are encouraged to develop cane skills and not to rely on others to help them get from class to class. Most students have already had mobility training before they attend college, but this is an area where much work remains to be done if the students are to be fully independent.

SUPPLEMENTARY SUPPORT FACILITIES

Although the primary services for academic functioning are centered in the Reading Department, other college and community facilities are utilized as needed by individual students. A very necessary aspect of the blind student's college life is his counselor. The Counseling Department has designated one counselor to serve these students as part of his load so that he can keep abreast of all the specialized needs of these students. He handles liaison with Vocational Rehabilitation and State Commission for the Blind as well as scholarship and vocational information. He provides testing and counseling services and arranges schedules, etc. In addition, he co-sponsors, with the Reading Department, the Diogenes Club, which is the club the blind and visually handicapped students have formed in order to participate more fully in student life. Others who are interested but are not blind are encouraged to join the club.

Community interest in the special services for these students has been high. The Lions' clubs have donated thousands of dollars worth of equipment and materials, and their camp facilities are used by many of the students. Other civic groups and businesses have provided programs for the student club. The State Commission for the Blind has been helpful in providing career counseling and placement for students, both before and after attending SAC.

EVALUATION

Although no base-line data exists on the level of functioning of blind and visually handicapped students before the program began, there are various criteria available for evaluating the worth of the program. Several students found that their grades went up at least one letter grade in the same course under the same professor after their books were available in Braille. This was found to be so critical for the students' progress that volunteers rushed in chapters as soon as they were brailled so that the students could use them immediately. Previously all tests were given orally and were often not equivalent to those the sighted students took, and now at least three-fourths of all the students' professors send all exams to be Brailled. This procedure is not without risks, however, as several students have flunked their exams. The students all say, however, that they'd rather have the same exams as the others and therefore the same chances of passing or failing. The number of students fluctuates each semester, with the range of seven to fourteen, of which approximately half have been taught Braille since their handicap developed after school years. Five non-handicapped students have learned Braille and are now or plan to go into special education for the blind and visually handicapped. The Braille load in Brailling handouts has tripled in one year, which would indicate a need for this service. So far only one student totally blind has been initiated into Phi Delta Thete, national Junior College honor fraternity. In general, professors polled for opinions on the values of the services feel that having the blind students on a more equal footing with other students is to the advantage of both students and professors.

The goals of the program are only beginning to be met. We hope to enlarge our scope by serving students in the piano-tuning school which is now not being served except on an informal basis. We would like to provide more mobility training and more liaison with other professional agencies, particularly in the area of career counseling. At this point, we feel the value of the program is proved; the progress report is positive in terms of providing for more independent functioning on the part of blind and visually-handicapped students at San Antonio College.

READING AND THE MEXICAN-AMERICAN STUDENT

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INTRODUCTION

One of the cruelest tragedies in American education until recently has been the knelling death blows against understanding the reading problems of Mexican-American students. If American education had been willing to cure the malady centuries ago, a name like "José Martinez" on the roster of Harvard's Law School would not be a surprise for us today; but linquistic and cultural handicaps, or anything smacking of "foreign," had been neglected from the beginning. De Toqueville (1947) recognized that characteristic in Americans over 100 years ago. During the years, Mexican-American students were often perceived, and in many cases still are, as being genetically or culturally incapable of succeeding in academic learning tasks and, consequently, are politely conditioned for failure or mediocrity at best.

When the Texas Education Agency reported ten years ago that 82 percent of Spanish-speaking students were educational failures, the parents and some educators became aroused; yet now, 1973, there is little experimental or observable evidence of any nationwide improvement. To be fair, it must be reported that the federal and state governments have, since 1965, made new thrusts to cure the disease through ESEA funds; thus many schools in the United States have spent approximately $1,000,000 on machines, materials, and salaries. One devastating variable, though, and the most crucial, according to Highet (1950), Whitehead (1947), Pullias (1963) and other experts on college teaching still exists: the understanding and knowledgeable teacher.

Too many teachers working with Mexican-American students are superficially trained and lack the insights of these students; lacking understanding and training still places the burden of success with the tolerance level of the students for overcoming learning-reading problems.

Learning to read, however, cannot be left to chance; insights into teaching reading skills can be learned from other successful reading teachers in the universities or from private enterprise like the American Learning Corporation; insights into the Mexican-American mind, to be sure, are much more complex; the variables are very elusive, and therefore, difficult to identify. Many of the variables are "invisible" such as Erving Goffman and Edward Hall speak of in their books, *The Presentation of Self in Everyday Life* (Goffman, 1959) and *The Silent Language* (Hall, 1959). The waiter who is unduly concerned of his thumb on perhaps a cracker in the presence of customers invokes one image whereas in the kitchen he presents quite another by rearranging the vegetables on the plate with his fingers, nonchalantly.

Not every teacher should teach reading, but every reading teacher should understand his students. What follows can be considered the first steps towards achieving this end.

INSIGHTS INTO MEXICAN-AMERICANS

First of all, one has to understand thoroughly that one culture is not any better than another culture—no more than one language is better than another, i.e., Spanish is not better than German; German is not better than English; and English is not better than Swahili. Moreover, the manner in which one cultural group treats the concept of time like the proverbial "Manana syndrome" or other social customs and more should, therefore, not be compared to one's own custom in order to emphasize and denigrate the differences. After all, the target culture has survived thousands of years and finds its style of living most appropriate and comfortable. Who is to play the role of Solomon and claim, "We have more culture than you," or "Our culture is better than yours"? Only a fool would.

In working with Mexican-American students, the sensitive teacher reinforces them with regard to their culture as often as possible vis-à-vis the logic or rationale for doing something their way in contrast to the way Anglos do something. Take, for example, the family unity that pervades the Mexican-Americans. They stress great value in the family; the father typically is the authority figure for the family, and the mother is the authority figure for the house. This relationship might seem to be contradictory, but the children learn about the two roles easily. In school, as a result, the principal is perceived as the disciplinarian and authority figure while the teacher becomes the "mother" to carry out the everyday affairs of teaching. In addition, Mexican-American children are saturated with love evolving into a proud and protective family. The "family" includes not just the immediate members (uncles, aunts, cousins and, godparents) but good friends (*compadres*) as well. Lastly, younger members are expected to obey the older siblings, in which males are dominant over females.

In the barrio of East Los Angeles, the writer oftentimes sees entire families, grandparents, parents, and children working in the yard together or washing the car. In the Boisie Cascade tract where he lives among Anglo-middleclass, the writer can drive for blocks without witnessing an adult and rarely a family. The reader is encouraged to draw his own conclusions.

In understanding the Mexican-American, it is also important to know that traditionally, as in Spain, the rural dweller has always distrusted the "city slicker" or any man who wears a suit and tie. It is the man who works with his hands, especially he who works the earth, that is to be trusted. To support this idea, an artist-friend who spent three years traveling throughout Mexico learned that Mexicans favor the Japanese over the Chinese, because the former group is associated with growing vegetables and flowers while the latter group is more often found in the cities; very obviously, it is not that one ethnic group is more honest than the other but merely the propinquity to the downtown setting. This historical concept of respecting the farmer, craftsman, artist, or musician has important implications to educators, despite the rapid cultural changes taking place. It becomes reasonable to understand:

1. why many Mexican-Americans do not possess the aggressiveness towards pursuing the academic subjects as found among the Anglo-Whites and Orientals,
2. why there is little pressure at home to attend college, and
3. why there is encouragement to the contrary for getting a job and becoming an honest, respectable person in the community.

It would be interesting to learn what percentage of the two million bilingual Americans living in just the five Southwestern states consciously or subconsciously uphold that tradition.

A final variable for this paper is in reference to their attitude towards the group. It has been the experience of the writer that Mexican-Americans, like the Indians, have a stronger loyalty and unity to their group than their Anglo counterparts. The result has been that the Spanish speaking generally do not respond well to teaching techniques where the teacher encourages competition among his peers. The Mexican-American perceives it as "putting down" the other members of his group or being a radical and inviting to be alienated; neither is acceptable. Individualized instruction and cooperative teaching methods prove to be more successful. More insights, like those mentioned above, are needed to improve teaching effectiveness with Mexican-Americans.

What has been expressed should not, in any way, be interpreted as being descriptive of all Mexican-Americans, or that they are disinterested in learning, or that they do not wish to rise above the laboring class; their patterns of culture are definitely changing, but teachers still need every insight available so they can get a feel of the pulse and therefore pierce the ethnic mask and genuinely understand the dignity of the individual behind the mask.

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READING TECHNOLOGY OF TOMORROW RESTS ON READING RESEARCH OF TODAY

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BARRIERS IN EDUCATIONAL TECHNOLOGY

There is evidence in the literature of educational technology that significant barriers other than cost factors confront the development and dissemination of learning systems. As the first and most significant barrier, Engler (1) cites the knowledge barrier which is followed by the measurement barrier, the critical mass barrier, the inertial barrier and, finally, the emotional barrier.

In this paper the knowledge and the measurement barriers are discussed as related to reading performances evidenced by 290 university freshmen. Empirical research will attempt to identify some of the problems in reading that are also obstacles in educational technology. Studying these barriers may assist in overcoming them as seen from the viewpoint of reading.

THE KNOWLEDGE BARRIER

Within the knowledge barrier the instructional situation is mainly confronted by the nature of the learner, the content he is about to learn, and the environment in which he is learning. Who is the learner and the reader among the other readers in the classroom setting?

The reader is an individual who is alive with living thought (5). It is an individual or a real person who brings unknown amounts of background experiences to the printed page before reading and who takes or is expected to take additional amounts of meaning from the printed page after reading. It is the reader who from his background experiences must bring meaning to, in order to take meaning from the printed page by applying among others, contextual reading skills.

Within the limited scope of this paper, Table 1 shows one sample of three empirical studies that demonstrate the first characteristic of the reader. This characteristic can be described in three phases.

THE FIRST CHARACTERISTIC OF THE READER

In the first phase the reader exposes what he already knows about the subject matter before he has read the assignment. This is done by asking

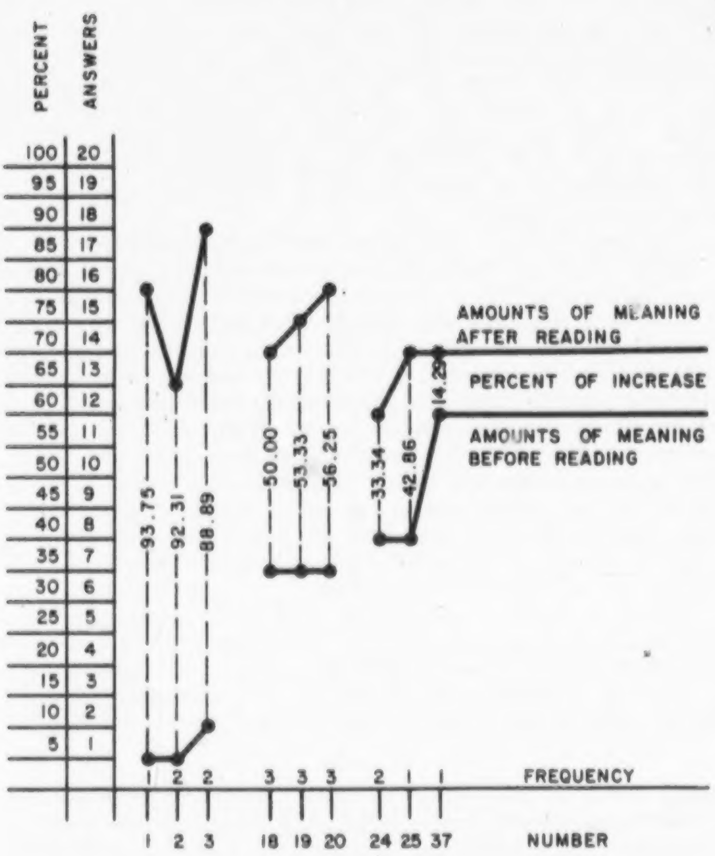
Table 1 and Accompanying Diagram: Selected samples of 80 of the 290 university freshmen showing individual reading performances, grouped in frequencies, in bringing varying amounts of meaning to the printed page *before* reading and taking varying amounts of meaning from the printed page *after* reading.

No. of Events	Frequency Performance	Amounts of Meaning				Increase in Percent
		Before Reading Answers		After Reading Answers		
		No.	%	No.	%	
1	1	1	5	16	80	93.75
2	2	1	5	13	65	92.31
3	2	2	10	18	90	88.89
18	3	7	35	14	70	50.00
19	3	7	35	15	75	53.33
20	3	7	35	16	80	56.25
24	2	8	40	12	60	33.34
25	1	8	40	14	70	42.86
37	1	12	60	14	70	14.29

the reader to answer a set of questions that reflect the content of the not yet read assignment. The number of questions answered correctly and their corresponding percentages provide a tentative dynamic continuum of the varying amounts of meaning brought to the assignment before reading. The outcome in the first phase reflects what the individual reader knows about the subject matter to be studied and is said to be the reader's background experience which reading literature so profusely speaks of. How do individual background experiences as input meaning promote output meaning? Does an individual student with low input meaning gain more meaning by reading than the others? Does he gain more than those with the highest input meaning? Does an individual student with high input meaning gain more or gain less than the others? Can the output meaning be predicted from the varying amounts of individual input meaning?

In the second phase, the reader is actually reading the assignment. After he has read, he answers the same set of questions which yield additional results according to individual application by reading. The

Diagram to Table 1



outcome represents the amounts of meaning taken from the printed page after reading.

The third phase of the reader's first characteristic is his increased or decreased output performance by reading the assignment. His performance is increased when he shows a gain after reading and is decreased when he shows a loss after reading. At this point, each phase of the first characteristic is visible, measurable, and repeatable. While each phase is describable, it is no coincidence that these three descriptive terms concerning the outcome appear to be the stronghold in instructional technology (2). There is, however, another characteristic of the reader that, measurable or not measurable, influences if not determines the first characteristic.

THE SECOND CHARACTERISTIC OF THE READER

The willingness of the reader to do what he is asked to do is the first part of the second characteristic. To what degree is the reader willing to disseminate his background experiences, to apply himself to the task, to communicate what he has or is expected to have gained by reading? By what means can this innermost nature of the reader be measured or repeated? While this innermost nature is yet and may possibly remain beyond technological result-orientation, beyond the control of tangible and variable, the art of observation may enter here as the other part of the second characteristic.

Observation in form of intentional awareness of particular symptoms in reading done by the trained instructor is one way of observing. In this case the instructor closely observes the student's performances, for instance, while reading silently, and by using a check list or a chart, marks any observable symptoms (3). The onus is on the instructor, on his sensitivity to student behavior, as well as on his competence in receiving such body communications that constitute the more deep-seated components of the reader's individual nature. When, as in the case of introspective observation, the reader becomes aware of his own acts of behavior during reading and reports on it in descriptive terms, a greater insight may be gained towards his own reading behavior. Maybe psychological research on intentional and introspective observation as applied to reading can open another avenue to explore more profoundly the other part of the second characteristic.

Looking at Table 2, numbers 24, 25 and 37, the result oriented educational technologist may note that the output of these students is low after reading. Intentional observation done by an instructor sensitive to observing symptoms seeks answers to these and other questions: Was the nature of the content too easy for these students and therefore

Table 2: Results of 290 university freshmen on the Nelson-Denny Reading Test Form A showing reading performance ranges from low to high in accordance with achieved raw scores and their corresponding percentiles and grade equivalent norms.

Kind of Scores	Student Performances In		
	Vocabulary	Comprehension	Reading Rate
Raw Scores	14–52	14–64	94–563
Percentiles	6–86	9–97	2–99
Grade	8.8–14.0+	-7.0–13.8+	-7.0–14.0+

the assignment boring and unchallenging? Did they think they knew enough about this content and therefore did not make greater efforts? Do they lack adequate comprehension skills? Why did they perform as they have?

To answer these questions and then to correct the outcome requires the instructor to think as well as to teach diagnostically. It implies that it is not the result-orientation that matters in the ultimate analysis of instruction but the "in-betweens" of diagnosis to find the how-to-get-there attitude of the reader. What goal, if any, did the reader have in his mind? Are the goals fostered by an inquisitive mind that is curious as well as courageous to ask further questions? It is his inquisitive attitude that enables the reader to cross the barrier from learning to thinking. Could result-oriented instruction neglect or, perhaps, destroy individual thinking and the efforts involved in it?

Briefly restated, the second characteristic of the reader is the not yet fully answered question of his inner nature, within his body and mind, which influences in varying degrees the three phases of the first characteristic of the reader.

THE MEASUREMENT BARRIER

The second barrier, measurement, includes, as Engler indicates, the standardized tests which would also include the standardized reading survey tests as well as the so-called standardized diagnostic reading tests. Engler continues to state that standardized tests "are of little or no use in either developing or using instructional systems. They are not useful for diagnosing . . . , nor are they very meaningful in evaluating a learner's progress." (1:3)

How is standardized testing used in our schools and institutions of higher learning? Little needs to be said of this state of affairs and it can be summarized thus: "In this century, only the standardized test and the school bus have had any profound effect upon the operation of our schools." (1:4) Maybe this state of the art has something to do with the inertia of the country's teaching force. In spite of the modern advances technology has made in the nation's daily life, there appears to be little or no impact upon our institutions of learning and, perhaps in particular, in learning to read and in reading to learn. How can the usage of measurement be improved? How can research in diagnostic teaching help to overcome this barrier? Again, I suggest it is not the result-orientation but the student-orientation from which answers may be derived. Reading results obtained by the crude gain formula of x_2 minus x_1 equals progress or failure, may mean very little as far as the reader's performance is concerned. This kind of output simply does not explain what the reader brought to and what he took from the task, what he gained by doing it and how he got htere, and, above all, what he needs to do to improve in order to do it better, more independently, and more effectively. Neither the student nor the instructor are helped by knowing the normative number of the frustration level on a standardized reading test from which an instructional or performance level may be guessed.

Instead, the diagnostic thinking and teaching instructor as well as the student want to know within which ranges the student is able to read independently or to read with how much help from the teacher. Diagnostic teaching wants to know which students are capable of reading which materials, what skills they need help with in order to continue to perform successfully, and how soon or when can the student be advanced to read more complex and difficult materials. Diagnostic instruction may assist to overcome the measurement barriers found in standardized reading testing.

Table 2 shows the results of 290 university freshmen who took the Nelson-Denny Reading Test Form A. The raw scores, percentiles, and grade equivalents are giving the standardized reading ranges from low to high of the total test population. While number ranges are given, not much can be gained from them, nothing more and nothing less than what can be gleaned from the manual's description. How do the results help the ordinary classroom instructor? Do the results indicate what a student can read? Do the results say if a student is able to read the present textbook? Do the results indicate if the textbook is too difficult or too easy for him? What kind of help in particular does he need to improve? Together with the nature of the reader, what does the normative number reveal? Are the readability ease levels in Form A of the Nelson-Denny Reading Test equal or nearly equal to the university freshmen textbooks? Is the test content in general, special, and technical vocabulary and their concepts reflecting the content demands of such textbooks in the various disciplines?

When, however, within the diagnostic teaching, the Multiple Group Informal Silent Reading Inventory is applied as Taschow (4) has described elsewhere, tentative reading performance levels emerge. The MGISRI reveals through individual student's reading performances their reading to learn proficiency or their lack of it, their efficient or inefficient reading behaviors in silent reading, their reading flexibility and accuracy in comprehending reading materials that actually pertain to the content matter under study.

Table 3 shows the group analysis of the same 290 university freshmen after they had taken the Multiple Group Informal Silent Reading Inventory.

While greater detailed discussions on the usage of the MGISRI cannot be given here, but may be found in another article (3), the key to diagnostic teaching lies in the recognition of the dynamic continuum of what has happened through the individual reading performances. Dynamic continuum is not a cliché, but indicates that each reading performance is flexible and changeable through students and teachers efforts. The dynamic continuum challenges students and teachers alike to ever greater purposeful and positive work fostered by a more effective and constructive student behavior in which the instructor is guiding the students to their self-development in reading, the ultimate goal in education.

Table 3: Results of the Multiple Group Informal Silent Reading Inventory (MGISRI) administered to the same population of 290 university freshmen showing their tentative reading performances and instructor's suggestions thereof.

290 Total Population **Assumed to Read Textbook**					**Results of**
115 Students **Can Read Textbook**		**175 Students** **Varying Difficulty** **Reading Textbook**			**First MGISRI**
43 Students	72 Students	84 Students	69 Students	22 Students	**Second MGISRI**
Can read above assigned text-book level	Can read above textbook when receiving help	Read textbook laboriously	May be able to read textbook	Almost unable to read textbook	
Dynamic Continuum of Student Reading Performances Suggests to the Instructor					
Need guidance to more complex reading materials	Need help in building specific concepts	Need higher level reading skills	Need basic and higher level reading skills	Need and will profit from special reading help	
May become bored if not further challenged	Textbook reading may just be right	May become frustrated if forced to read too difficult textbook			
Drop-outs?				Drop-outs?	

CONCLUSION

From the instructional technologist's point of view there are among others two barriers that abstruse and obstruct further development and dissemination of learning systems. The two barriers, knowledge and measurement, as applied to reading proficiency have been discussed. Student-orientation in the dynamic class continuum rather than result-orientation in the workshop of instructional technology has been stressed. Empirical studies suggested some characteristics of the nature of the reader and learner which through diagnostic teaching tends to fathom the individual student in his zeal or indifference in reading. While more research is needed to enlighten the complex and difficult components of the nature of the reader and the inconclusive vagueness of standardized reading testing, it is hoped that the empirical studies and their discussions presented in this paper may assist in overcoming the two barriers of knowledge and measurement in educational technology.

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BENEATH AND BEYOND SQ3R: A READING APPROACH FOR NON-FICTION

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As I have seen how effectively many of my students can apply the SQ3R study method to their textbook assignments, I often wondered why they should not be taught to use some of the features in other kinds of non-fiction reading. I have tried consciously applying these features in my own reading of essays and popular magazine articles and found that it is what I have almost unconsciously been doing through the years anyway.

We can teach students to approach an essay or an article systematically, beginning with something like the previewing and question asking techniques which Francis Robinson worked out for textbook study and following through with purposeful reading. But before we can do this, I think we need to point out to students some of the ways that non-fiction writers use language to develop their ideas. Specifically, we should show them that these writers usually *directly state* or *clearly imply* not only their *topics* but their *points of view* concerning these topics and that they do this in certain key places—usually in the opening paragraphs or concluding paragraphs. And to help students learn to find these statements and inferences easily and quickly, we need to teach them something about the *generalizing* and the *emotive* powers of language. I like to begin with the "ladder of abstraction" concept.

For example, we might give students a series of statements like these and ask them to think through the relationship of the statements to each other, noting the order in which they are arranged:

> Old cars cause their owners lots of trouble.
> My old Edsel is worse than most.
> It almost never starts in the morning without
> five minutes of choking and throttling, and
> even then I can't be sure it will keep moving.
> Yesterday morning, after I finally got it started,
> it stalled just as I was starting across 19th St.

The student probably noted that each step in this ladder becomes less general (abstract) as he moves down from the top. That is, the first sentence is about *many people's experiences* with *many cars;* the second is about *one man's many experiences* with *one car;* the third concerns his *many experiences* of *one kind* with one car; and the last is about *one particular* *experience* with *one car.* All of the sentences except the last one are somewhat general or abstract because they all apply to more than one experience. But the first is the most general because it is broad enough in scope to cover all the points made in all the others.

I think the terms *general sentence* and *thesis sentence* can be used to show students how essayists and article writers "signal" their ideas to the readers. I use "general" sentence here to refer to a statement like one of the top two sentences on the ladder. The first few paragraphs of essays and articles often include several general sentences which lead the reader into the writer's main idea. And one of these paragraphs or the last paragraph often contains a thesis sentence which summarizes the writer's idea and makes clear his point of view toward whatever it is he is writing about (excluding narratives). To recognize and understand these statements, the student has to be aware of a language's potential. Let's see what happens when we re-write the sentences on that ladder in such a way as to convey the speaker's feelings about a subject, his attitude toward it, or the emotive connotations.

> Most people hate their transportation cars as much
> as I hate my old heap.
> My old Edsel is worse than most. (No change seems
> necessary here.)
> I get sick of trying to nurse life into the damned thing
> every morning.
> Yesterday, when it stalled on me in the middle
> of 19th Street, I got so angry that I called it every
> obscene name in the books.

I think we can use sentences like these to teach students the concept of *emotive connotation.* For example, in a class discussion we could ask them to identify the words in these sentences that have highly negative connotations. Most students would recognize *angry, hate,* and *sick* as words that bring disagreeable associations. And we could show them that some of the other words become negative simply because of their association with the words around them, i.e., by the way they are used in *context.* For example, *transportation* is not ordinarily a highly emotive word. But the phrase *transportation car* gives the impression of a vehicle the owner uses not because he is proud of it but because he can't afford anything better and needs something to get him to work. And *heap* takes on a very different connotation when the speaker is talking about a car than it does when he means a pile of pancakes on a plate. Also, some students will recognize that *Edsel* has a negative connotation today simply because of the unfortunate history of that automobile.

Of course, general and thesis sentences in essays and magazine articles do not always make use of such intense emotive language like the words added to the sentences in the example. However, if statements ordinarily make judgments about persons, objects, or conditions, they are emotive. The student should understand that all words except those that give information about things or events communicate some emotion. Words like *victory*, *democracy*, and *recreation*, for example, generally have positive connotations, whereas the words *death*, *laziness* and *fear* are regarded negative. Abstract nouns, therefore, are frequently used in sentences that introduce or summarize main ideas in essays and articles.

They can also be used in other sentences of course; and as I suggested earlier I think that in scanning or "getting started" in a short prose piece the reader should look both for generalizations and for emotive expressions, especially in titles.

Titles of popular magazine articles, for example, often communicate to the reader in a different way from textbook chapter titles do. A chapter title in a conventional textbook usually shows the reader that the writer is making every effort to present "pure" information. But consider these titles from recent issues of magazines: "Nibbling Away At the West," (James Nathan Miller, *Reader's Digest*, Dec. 1972), "Dilemma of the Black Policeman," (Alex Poinsett, *Ebony*, 1971), "The Greening of Chicago," (Carol Costello, *Holiday*, Jan.-Feb. 1972), and "Marketplace of the Unnecessary," (Jack Smith, *Westways*, October, 1972). I like to show students who need help in understanding relatively simple prose that titles like these contain key words which signal the writer's point of view toward his subject. The key words in the above titles, of course are *nibbling*, *dilemma*, *greening*, *marketplace*, and *unnecessary*. A simple SQ3R-type procedure to offer some students as a way of getting into articles, is as follows:

> *Step One:* Question the title. Titles like the ones I have given here will suggest questions to the reader before he even looks at the article.
>
> *Step Two:* Scan the first several paragraphs looking for general sentences and emotive phrases and relating these to the title. (It may be helpful to check the concluding paragraph also, but for the simple structure of the typical magazine article, that much previewing may be unnecessary.)
>
> *Step Three:* Find a *general answer* to the *basic question* the title implies. If the title suggested several questions to the reader, the second step probably made clear which one is the writer's main concern. At this point the reader can associate the title with the signals he has found in his scanning and anticipate the direction of the article.
>
> *Step Four:* Read to find detailed answers the writer gives to Step 1.

Through the use of this method and some additional reading techniques, many students can develop the ability to understand easily and quickly the contents and the points of view presented in most magazine articles.

It will surely occur to you that this exacting approach to magazine articles should not be limited to students whose reading skills are limited. However, as I have suggested, the general approach of questioning and previewing short non-fiction selections before reading them through is one that I think all students can use to advantage. I suggest something like the following:

> *Step One:* Question: Ask questions about the title.

Step Two: Preview the essay or article, paying particular attention to the first sentence or two (possibly the whole first paragraph), any sub-headings or italicized words or phrases (There may be none.), and the last sentence or two.

Step Three: Determine the main question and find the writer's general answer to that question.

Step Four: Read the selection through rapidly.

Step Five: Re-read the essay as many times as needed. For example, one might want to read it once to understand the writer's main idea, a second time to analyze his style and tone, and a third time to find points to respond to complete an assignment.

Finally, then, I think the approach to short non-narrative non-fiction makes sense for the same reason that SQ3R makes sense: it is adapted to the structure of the reading material and the purposes of the reader. Just as SQ3R encourages the student to read to acquire a specific body of information, this method encourages him to "think along" with a writer who is developing a specific, limited idea. Therefore, the student who uses it develops a kind of purposeful, inquiring approach to the printed page which can be of considerable value to him throughout life.

A REPLICATION IN VOCATIONAL READING: THE PROJECT AND THE CRITERIA USED TO DETERMINE THE FEASIBILITY OF REPLICATION*

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INTRODUCTION

Reading consultants in community colleges can find themselves in peculiar situations. If their instruction is confined to the classroom or learning lab, they are likely to find themselves instructing classes of students with "problems" in reading. In other words, the students come for assistance after the damage has been done. It would seem to be a greater service to students to alert instructors in the content areas to the actual communication/reading demands placed on students in the areas and to alert students to the communication/reading demands placed on them in these areas. The reading consultant is then confronted with the whole question of what kinds and levels of communication are being used in the courses at the college. The reading instructor can be of greatest value to students by becoming part, in some way, of the communication occurring between the content area instructor and the student. In searching for ways to be of service to students and instructors both, it appeared to the author that a program having the following components would, in some cases, provide entrance:

1. Assessment of the reading levels of the students enrolled in a given course at the college.
2. Evaluation of the readability of the texts used in the course.
3. Determination of how the instructors used and augmented the texts.

The Vocational Reading Power Project (VRPP) described by Butz et al. (3) and Butz (2) has focused on these three basic activities at the vocational high school level. In the project reported here, then, the reading consultant's objectives coincided with those of the VRPP.

It is hoped that both the actual findings of the project and the criteria used to determine the feasibility of replication will provide a model for augmenting the impact of the community college reading instructor within the institution.

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REPLICATION PROCEDURE

Overview. The following major components of the VRPP were replicated:

1. The reading comprehension levels of community college students enrolled in three courses at the College of DuPage were determined by the *Gates-MacGinitie Reading Test, Survey F, Comprehension Subtest* (5).
2. The reading difficulty levels ("readabilities") of three textbooks and one study guide used by these students were assessed by applying a computerized version developed by Butz and Joos (1, 6, 7) of the Dale-Chall readability formula (4).
3. The readability levels of the texts were compared with the reading comprehension levels of students using the texts.
4. A 219-item survey was used to evaluate the knowledge and attitudes of seven instructors teaching the three courses with respect to reading and text use.

Subjects. Six different groups of students enrolled in three freshman level courses participated in the study. The total number of students was 208. The number of students in each class is indicated in Table 2.

Instructors. Each of the seven instructors participating in the study had had considerable experience both in his occupational area and in teaching. The instructor in the radiologic technology course is the coordinator of the radiologic technology program. A team of three instructor's including the coordinator of the program, taught the data processing course. Each of the sections of air conditioning was taught by a different instructor. The day session was taught by the (full-time) coordinator of the program, and the evening and Saturday sections were taught by a part-time instructor.

Texts. The texts evaluated are listed in Table 1.

Method: Student Testing. Student testing was conducted during the Winter Quarter, 1972. All 208 students were administered the *Gates-MacGinitie*

TABLE 1

Summary of Readability Analyses: Listing of Comparisons Between Student Reading Ability and Textbook Readability for Courses Offered at the College of DuPage During the Winter Quarter of 1972

NO	TEXTBOOK	Sampling Information		Readability (Grade Equivalent)	
		Number of Topics Sampled	Number of Words Sampled	Range of Sample Topics (Low to High)	Estimated Mean (95% Confidence Interval)
1.	Bohl Information Processing	20	6299	10 to 16+	12 - 15
2.	Bohl Study Guide to Information Processing	17	1809	11 to 16+	15 - 16+
3.	Selman The Fundamentals of X-Ray and Radium Physics	26	6795	9 to 16+	12 - 14
4.	Trane Air Conditioning Manual	27	10,810	7 to 16+	10 - 12

Reading Test, Survey F, Comprehension Subtest (Form 1M). The reading consultant administered all tests.

Method: Readability Analyses.

Dale-Chall readability analyses were completed on each of the four text materials. The sampling strategy was random sequential, with the "topic" being the sampling unit. (A "topic" was defined as a conceptually and structurally complete sub-unit of a chapter; operationally, topics were sequences of narrative text, identified by a boldface-type heading, within a chapter.)

The samples were edited to conform with the instructions of Dale and Chall, and were keypunched onto standard IBM data cards. The readability analyses were performed on Oakland Schools' IBM 360-50 computer, using the Joose-Butz Readability Program.

Method: Instructor Survey.

Each of the seven instructors completed the VRPP Survey, and returned it to the reading consultant.

Results: Reading Analyses.

The readability analyses on the text materials are shown in Table 1. It may be seen that the topics in all of the books showed a wide range in reading difficulty, and that there were considerable differences between the "average" readability values between books. The mean readability of the *Trane Air Conditioning Manual* was significantly lower than the other three books (p. 05) and the Bohl study guide was significantly higher (p. 05). It is interesting that the readability of the Bohl study guide is higher than that of the Bohl text; this probably reflects the greater difficulty of the study guide's "condensed" description of the content. It should be noted that these books were selected for use in freshman-level courses; the present analyses indicates that a very high level of reading skill would be required to use the materials selected for data processing and radiologic technology courses, despite the Dale-Chall score.

Results: Reading Tests.

The results of the reading test, as shown in Table 2, indicate that the reading comprehension of the students was, in general, quite high. It is noteworthy that the mean scores were very consistent between sections of the same course; this is particularly interesting in the case of the three air conditioning sections, which were quite different with respect to age ranges and academic backgrounds.

It must be mentioned that within each section there was a considerable range of reading test scores; in every section there were some students who scored at or below 8th grade level, as well as students who scored at the level of the average college graduate.

Results: Comparison of Reading Test Data and Text Readability Data.

Table 2 shows the comparison between the readability of the texts and the reading comprehension levels of the students.

TABLE 2
Summary of Readability Analyses: Listing of Comparisons Between Student Reading Ability and Textbook Readability for Courses Offered at the College of DuPage During the Winter Quarter of 1972

NO	COURSE	n	TEXTBOOK	TEXTBOOK READABILITY Mean Dale Chall Readability Grade Equivalent	STUDENT READING ABILITY Mean Gates MacGinitie Comprehension Grade Figure	Percent of student comprehension with scores below mean textbook readability	Percent of textbook topics which the average student may be expected to "comprehend"	
							not less than	not more than
1.	Air Conditioning and Refrigeration 102 (a.m.)	15	Trane Air Conditioning Manual	10 - 12	13	7% - 27%	66%	95%
2.	Air Conditioning and Refrigeration 102 (p.m.)	32	Trane Air Conditioning Manual	10 - 12	12	16% - 47%	63%	93%
3.	Air Conditioning and Refrigeration 102 (Sat.)	32	Trane Air Conditioning Manual	10 - 12	13	16% - 41%	66%	95%
4.	Data Processing 100 (a.m.)	73	Bohl, M. Information Processing	12 - 15	14	25% - 46%	41%	86%
5.	Data Processing 100 (a.m.)	73	Bohl, M. Study Guide to Information Processing	15 - 16+	14	45% - 70%	12%	57%
6.	Data Processing 100 (p.m.)	39	Bohl, M. Information Processing	12 - 15	14	26% - 41%	41%	86%
7.	Data Processing 100 (p.m.)	39	Bohl, M. Study Guide to Information Processing	15 - 16+	14	41% - 67%	12%	57%
8.	Radiologic Technology 102	18	Selman, J. The Fundamentals of X-ray and Radium Physics	12 - 14	15	22% - 28%	61%	92%

Three comparative measures were calculated.

a. The mean Dale-Chall value of each test was compared with the mean Gates-MacGinitie score of the students (both values expressed in grade equivalents). Table 2 shows that the mean reading comprehension level of the radiologic technology students was *at least* one grade level higher than the mean reading difficulty level of the text they were using, and that the mean reading test score of the two air conditioning sections was at least one grade level higher than the mean reading difficulty level of the Trane manual. There were no other significant differences between the text means and the student means in the other three sections.

b. Table 2 also shows the percentage of students in each section with reading comprehension scores at least one grade level below the mean reading difficulty level of the text. (Since the mean readability value for each book was expressed as a confidence interval, the percentages were also presented in the form of bands.) It may be seen that in each class there was a considerable number of students with reading comprehension scores below the mean of their text.

c. Table 2 also estimates for each section the percent of topics in the text which are at or below the level of the average reading comprehension grade equivalent for students in the section. A table of confidence intervals was used to obtain these percentages. Perhaps the most appropriate interpretation of these very conservative statistics is that in the air conditioning sections most (at least 2/3) of the topics in the text would be at or below the reading comprehension levels of the "average" students; in the other courses there would probably be a greater percentage of topics above the reading comprehension levels of the average student in each section.

Results: Instructor Survey.

A summary analysis of the seven instructors' responses on the VRPP survey indicated that

a. Six of the instructors responded that the text was an "important and necessary" part of their course.

b. All of the instructors rely heavily on the textbooks in their courses; all responded that the text was a) the primary reference for occupational theory in their courses, b) the primary reference for outside assignments, and c) the sequence of the course followed the sequence of the text.

c. Most of the instructors expected their students to read the text "independently," i.e., without help.

d. All the instructors used the review questions in the text as a measure of their students' comprehension of the text.

e. Virtually all of the instructors had used and/or developed various kinds of materials to supplement the text.

f. All the instructors felt that it was very important for their students to "visualize from a written description" and to "apply textbook principles to practical applications."

g. Finally, in response to the question: "If you were selecting students for your course, how important would you consider the following?" all the instructors rated "schematic interpretation" as "very important" and six of the seven rated "reading ability" and "self-discipline" as "very important" (the highest evaluation offered).

CRITERIA USED TO DETERMINE THE FEASIBILITY OF REPLICATION

At the start of the replication eight criteria were established for determining whether such a project was possible. These criteria were selected because each involves a decision maker or a group of decision makers who could "veto" the replication.

With Reference To The Faculty Involved In The Pilot Project

Nine instructors were approached to determine whether they wanted to participate in the project. One used no text in his course and one said he had too few students to make the replication valid. The other seven became the content instructor participants in the project.

With Reference To The Faculty Not Involved In The Pilot Project.

Two English instructors asked the reading consultant to administer the Gates-MacGinitie test to classes which seemed to be having difficulty reading assignments in English. The two classes were tested and a week later the reading consultant and English instructors interpreted some of the apparent findings to the classes. The students then took the computer printouts of their wrong answers and a copy of the test and decided why they made the errors they had made. The most common findings of the students were: a lack of general vocabulary information coupled with an inability to use context clues; a lack of general information; and a syndrome they identified as "psychological cop-out." They found that if they predetermined that they did not know anything about the subject, they did not even seriously try to answer the test item. For example, one series of items was concerned with chemistry. The students, in some cases, knowing they knew little about chemistry, did not try and did poorly. In going over the items, terminology from cooking was used in place of the chemical terms and the students found that they could easily supply the answers.

With Reference To The Students.

In general, it is felt that the students were most cooperative. After their participation in the project was explained, they worked with the instructional team to provide valid test results. The students in the vocational-technical areas were sporadic in their response to the test results, themselves, but there were some requests for interpretation of the results. Many of the students scored much higher than they thought they would and some students who scored low are coming to the reading lab to develop their reading skills.

With Reference To The Computer Services Department At The College Of DuPage.

The computer services personnel not only understood the instructional implications of the program, but also suggested some further uses of the program. It was determined that readability analyses could be done at the college using existent equipment if reprogramming were done. Since the computer at the college is in great usage, the Computer Priorities Committee has been created to establish programming priorities. This leads to the next criterion for evaluation.

With Reference To The Administration.

The reading consultant was first introduced to the work being done at Oakland Schools at the National Reading Conference in early December, 1972. In December the Vice-President, Program, at the College; the Dean of Faculty; the Associate Dean, Vocational and Technical Programs; and the Head of the Computer Services Department were not only psychologically supportive, but also had provided the funds necessary for both a feasibility study and replication. The administrative support was also evident when the project was presented to the Computer Priorities Committee. The committee is large, composed of 12 administrators representing various segments of the college population. Immediately after presentation of the request for reprogramming, the committee made several supportive comments and unanimously voted the reprogramming priority one. This directed computer services to begin programming immediately. This vote subsequently served as a further dissemination of the availability of the service and has influenced the choice of textbooks by faculty already.

With Reference To The Oakland Schools' VRPP Personnel.

The Oakland School and DuPage teams quickly decided that a replication was feasible and began work January 2. The Oakland Schools' team provided considerable support and encouragement at each step of the replication. They consistently provided information and services not available at the college.

With Reference To The Director Of The Developmental Learning Lab At The College Of DuPage.

The director determines the scope of the responsibility of the reading consultant. Immediately after the NRC meeting, the reading consultant described the work being done at Oakland Schools to her. She provided unconditional support for the reading consultant. Because she had established the lab with maximum flexibility, time was available for consultations with participating faculty and staff with no diminution in services to students.

With Reference To The Reading Consultant

It was determined that the reading consultant, a graduate of a traditional reading program with several years experience in community college work, had proficiency in the basic skills necessary for the replication. For the more sophisticated aspects of the project, she relied heavily on the specialists in the other areas. The final determination of whether a continuing operation of this type is too large for effective operation depends on faculty usage of the program.

SUMMARY OF OUTCOMES

1. A greater professional rapport was developed between the faculty, administration, and students and the reading consultant. It is felt that the data generated by the replication concerning language in the college will be of benefit, both directly and indirectly, to the students.
2. The mean raw score for all the students taking the test, including the two English classes (n = 251) was 36.44 (upper 13th grade level). Eighty-three percent of the students were in vocational-technical courses.
3. The program was adopted for general use, but only as the result of the cooperative efforts of all of the persons involved.

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TSU–TECHNOLOGY STRENGTHENS UNDERSTANDING

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Texas Southern University

INTRODUCTION

The reading and study skills program at Texas Southern University serves three categories of clientele–the self-referred, referred, and required curriculum. The self-referred students are seeking help to strengthen areas in which they have detected weaknesses. The referred students are sent by various instructors and university agencies in the hope that the students can get help and overcome some specific problems they experience in reading and studying. The students who are required to take reading and study skills courses are beginning freshmen who score below 12.9 on the Nelson-Denny Reading Test. These students receive three semester credit hours, while the other two categories do not.

PROGRAM DESCRIPTION

The program is for the students who are required to enroll in at least one reading and study skills course. The program is not formulated on the premise that reading is fun or that an elixir has been found that makes learning effortless. Specifically, objectives of the program are these:

1. To determine needs of students through standardized reading tests, a standardized study skills test, responses to a teacher-devised questionnaire, teacher-devised tests and observation.
2. To establish with each student priorities in formulating an individual program for improvement.
3. To develop materials specifically designed to meet needs of Texas Southern University Students and to demonstrate study skills by using excerpts from textbooks actually used at the University and by using lectures delivered by members of the teaching staff. For example, if a student indicates that he cannot take effective notes, the Reading Center has tapes of lectures delivered by staff members in the various disciplines and these are used as a springboard for showing a student what he needs to know in order to take effective lecture notes.

Academically, many entering freshmen students disappoint themselves and others because they don't know how to make effective use of their study time in and out of the classroom, nor techniques for approaching a textbook and comprehending the materials therein. Because they lack these skills–skills fundamental to their success in college–they were requested to spend more time in the reading and study skills program.

A pilot program was initiated in the 1972 summer term. Instead of students spending the usual one hour per day, twice a week, they spent ninety minutes per day, four days a week, Monday through Thursday, in structured classes. In addition, Friday was designated for a seminar session, at which time students from all classes met concurrently to share and discuss problems experienced in mastering certain reading and study skills taught during the week.

The students received three semester hours credit as opposed to previous one hour credit. Due to low enrollment in summers, the classes were held to fifteen students. Each class was subdivided into three groups; a peer-tutor was assigned to each group.

The reading teachers endeavored to determine each student's specific area of weakness and formulated, with the student, a program for improvement. The teachers instructed, provided students with opportunities for practicing newly-learned skills, and advised students of ways of improving their performances. Specifically, the procedures of the reading program were (1) to diagnose the area of difficulty, (2) formulate plans for overcoming the difficulty, (3) teach those techniques which research and reading authorities regard as valid for overcoming difficulty, (4) provide interesting and varied opportunities for practicing skills, (5) test, formally or informally, to determine mastery of skills, and (6) re-teach those things the students' performances dictate.

The peer-tutors are students who have taken and successfully passed at least one course in reading and study skills. After each class period, the tutors are available for thirty minutes, to spend time with their groups in order to re-emphasize any point or points that the students did not fully understand. The tutors inform the instructors of the problems which students experience in mastering certain reading and study skills and together plan the next assignment.

USE OF TECHNOLOGY IN THE CLASSROOM

The unique feature of this program is the method used to help students to become effective learners. Whittaker (1) found that the use of mechanical devices resulted in impressive reading gains for students enrolled in basic reading and study skills for college freshmen. Therefore, at TSU maximum use is made of the mechanical devices to which students have access.

Closed-circuit television is used to allow students to detect and improve some of their weaknesses. More often than not, the television programs are of an instructional nature. Instructors' efforts are coordinated with those of the Texas Southern University Instructional Media Center, which houses a self-instructional laboratory.

Slides and sound film strips, prepared by the reading staff, are augmented with commercial audio-visual materials.

Tape recordings of reading selections are used for each reading in an effort to increase students' speed and proper phrasing. Students also use the tape recorder for recording and for criticizing their proficiency in oral reading. Controlled readers, pacers, skimmers, and tachistoscopes are other mechanical devices used to facilitate speed and comprehension.

Recorded lectures of instructors in other disciplines are used to develop listening comprehension, techniques of note-taking, and critical analysis skills.

Thus far the results of the program have been very rewarding. The students display a greater determination to learn than in previous years. For those students enrolled in basic reading and study skills courses, the attrition rate is less, and fewer students are placed on academic probation at the end of the semester.

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USING COGNITIVE CENTERS TO DEVELOP EFFECTIVE STUDY SKILLS

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Concerned educators are tossed to and fro, and carried about with every wind of curricular change in their search for a solution to the problem of some students not having the skills to cognitively process information. Educational hard and soft wares designed to solve this problem proliferate. Yet, students affected with monomaniacal memorizing usually respond to these materials in the same manner they do to traditional textbook materials. They look for something to memorize!

The students who do not learn intuitively most often focus on the specific characteristics of a phenomenon and ignore its general characteristics essential for cognitive processing. Thus, they seldom realize the mental power abstract systems for classifying phenomena generate. Focusing on specific characteristics creates a rigidity into which their minds are frozen. A frozen mind can only memorize; it cannot generalize.

Students who have not developed effective structuring and classifying skills intuitively can do it consciously. The general, cognitive skills they need to develop to realize the mental power abstract systems for classifying phenomena have been identified and defined by Bloom (1). Bloom's model, Taxonomy of the Cognitive Domain is seriate. The well known skills are (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation.

Any student who applies these cognitive skills will survive in an academic community. Any educational institution which admits students who cannot apply these skills has a professional responsibility to provide the assistance and directions needed to develop them. However, it would not be efficient use of resources for all instructors to present information as if no student could effectively process it cognitively. Since a small-instructor-student ratio is very expensive in higher education, it is incumbent that other ways be developed through which these students may stimulate each other in developing cognitive skills. The use of cognitive centers is one way to accomplish this. A cognitive center is a provocative environment generated by materials presented in a manner to stimulate a small number of students to engage in the exchange of opinions for the purpose of developing proficiency in prestated mental skills. At first, students who rely upon memorizing will find many of these activities frustrating. However, continued effort will make the activities rewarding.

A statement by Grant (3:207) describes best what will happen to students who persist in these activities. He said, "That which we persist in doing becomes easier for us to do; not that the nature of the thing is changed, but that our power to do is increased." Students must persist in thinking if it is to become satisfying. Therefore, many cognitive centers must be developed.

The following illustrations and explanations show how cognitive centers may be used to direct acquisition of the mental skills defined by Bloom. Rules I, III, V, VI, VII, IX, X and XII in Descartes' (3) "Rules for the Direction of the Mind" were adhered to when developing the materials for these cognitive centers. The rules are:

> I. The end of study should be to direct the mind towards the enunciation of sound and correct judgments on all matters that come before it (3:1).
>
> III. In the subjects we propose to investigate our inquiries should be directed, not to what others have thought, nor to what we ourselves conjecture, but to what we can clearly and perspicuously behold and with certainty deduce; for knowledge is not won in any other way (3:3).
>
> V. Methods consists entirely in the order and disposition of the objects towards which our mental vision must be directed if we would find out any truth. We shall comply with it exactly if we reduce involved and obscure propositions step by step to those that are simpler, and then starting with the intuitive apprehension of all those that are absolutely simple, attempt to ascend to the knowledge of all others by precisely similar steps (3:7).
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> VI. In order to separate out what is quite simple from what is complex, and to arrange these matters, methodically, we ought, in the case of every series in which we have deduced certain facts the one from the other, to notice which fact is simple, and to mark the interval, greater, less, or equal, which separates all the others from this (3:8).
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> VIII. If in the matters to be examined we come to a step in the series of which our understanding is not sufficiently well able to have an intuitive cognition, we must stop short there. We must make no attempt to examine what follows; thus we shall spare ourselves superfluous labor (3:12).
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> IX. We ought to give the whole of our attention to the most insignificant and most easily mastered facts, and remain a long time in contemplation of them until we are accustomed to behold the truth clearly and distinctly (3:14).
>
> X. In order that it may acquire sagacity the mind should be exercised in pursuing just those inquiries of which the solution has already been found by others; and it ought to traverse in a systematic way even the most trifling of men's inventions though those ought to be preferred in which order is explained or implied (3:15).
>
> XII. Finally we ought to employ all the aids of understanding, imagination, sense and memory, first for the purpose of having a

> distinct intuition of simple propositions; partly also in order to compare the propositions to be proved with those we know already, so that we may be able to recognize their truth; partly also in order to discover the truths, which should be compared with each other so that nothing may be left lacking on which human industry may exercise itself (3:18).

Cognitive centers based upon vocabulary learning may be developed which will stimulate student opinion essential for mental development. The description of the two following cognitive centers demonstrates this. The first center is designed to direct students to begin with what they already know regardless of how insignificant it may seem to them. Too often students who lack effective study skills feel anything they may know has little value. So, they ignore what they know when attempting to learn. This center directs students to learn. This center directs students to apply all of the cognitive abilities defined by Bloom to what they know when learning new vocabulary items. Please refer to cognitive center I, Vocabulary Variety.

The first decision this cognitive center asks a small group of students to make is under what concept some words may go they are assigned to learn. Perhaps in a list of fifty words would be the following: avarice, avid, covet, mercenarv, rapacious, and voracious. Students with the help of a thesaurus may decide the concept *greed* is common to these words. Then, one of the students would write after the entry *concept* on a four by six feet chalk board the word *greed*. (The designs in the illustrations for all cognitive centers explained are permanent.) After the concept of *greed* has been decided upon, students begin to explore how this concept is expressed in various language settings. [illegible] settings are suggested: learned, standard and colorful. In the learned setting, polysyllabic words containing Greek and Latin morphemes [illegible] express concepts which could be expressed with less preciseness [illegible] words used in standard or colorful situation. In the standard, usually words native to the English language are used. These words often do not express the emotions words

Cognitive Center 1

vocabulary variety

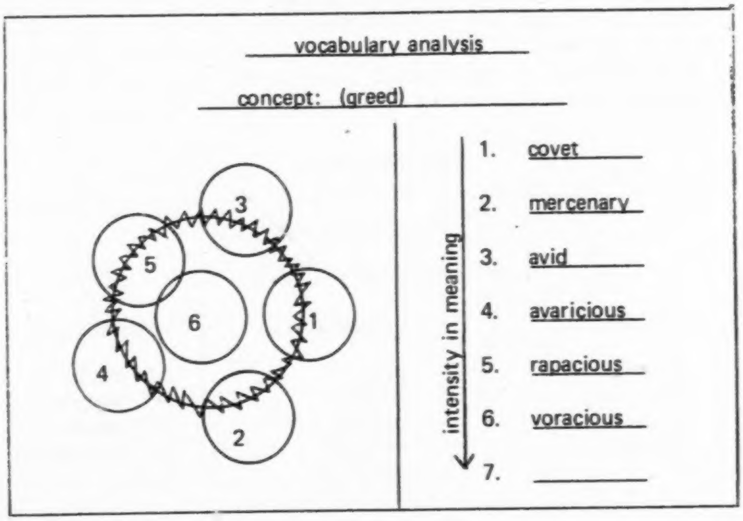
concept: (greed)

learned	standard	colorful
1. avaricious	1. covet	1. grabby
2. avid	2. greedy	2. hoggish
3. rapacious	3. grasping	3. piggish
4. voracious	4. mercenary	4. openmouth
	5. gluttonous	

used in the colorful do. In the colorful, idioms and words usually defined as being slang and colloquial are used. However, it is in the colorful situation man most often expresses what he feels and knows. The same concepts may be expressed in any language setting. In the languages of man, there are far more words than there are concepts in his intellect. Therefore, often the task in vocabulary learning is to learn new words to express concepts one already knows how to express in one or more language settings. It is easier to learn a new vocabulary item than it is to learn a new concept. This cognitive center directs students to discover whether it is a concept or a vocabulary item they need to learn. In the illustration for this cognitive center, some words are entered in each language setting which may be used to express the concept *greed.* This task generates student discussions and decisions essential for cognitive skill development.

Cognitive center 2, Vocabulary Analysis, directs students in small groups to discover how words are used to "tailor" concepts. For illustration purposes, let's consider the concept *greed* and the six words used in explanation of the cognitive center, Vocabulary Variety. In this center, students decide to what degree of intensity a given word represents a given concept. The idea of intersection is used with the center circle representing the whole meaning of the concept. Each intersecting circle suggests a degree of meaning a given word may represent the concept. After the students have decided which intersecting circle to place each word, they then order them according to the intensity they agree they represent the concept.

Cognitive Center 2



Cognitive center 3, Analysis, directs students to discover the phonemic and syllabic structure of English. Only consonant graphemes are used in the illustration since the inclusion of vowel graphemes would interfere with the purpose of the task. Numerals, morphemic symbols in biology, medicine, etc., or created symbols could be used also. The task is to discover which of the graphemes could represent vowels, consonants and initial and final consonant clusters. It is best not to use "silent letters" in the beginning of these tasks. After the students have discovered the vowel graphemes, they can be directed to discover how many different ways all series of graphemes longer than one syllable may be divided into syllables. From these tasks students learn how to divide words into syllables and to appreciate the fact that some consonant phonemes do not form a cluster in a language. This helps them be more conscientious when spelling. It consciously develops awareness they never acquired intuitively. An attempt to accomplish this with regular words will ignite their memorizing. They will focus on the specifics of each word and not make generalizations common to all English words.

Cognitive center 4, Which Could Be Words?, are strings of graphemes with some violating the phonemic structure of English. The task is to discover which strings of graphemes violate the phonemic structure and which ones do not. Reasons for each case should be given. The strings of graphemes which do not violate English structure should be morphemes which represent meaning. For example, *gravogyn* means "heavy woman." Thus, students may discover what each string that does not violate structure

Cognitive Center 3

symbols

1.	b	7.	j	13.	r
2.	c	8.	k	14.	s
3.	d	9.	l	15.	t
4.	f	10.	m	16.	v
5.	g	11.	n	17.	w
6.	h	12.	p	18.	z

vowels	consonants	
1.	1.	7.
2.	2.	8.
3.	3.	9.
4.	4.	10.
5.	5.	11.
6.	6.	12.

consonants clusters

1.	3.	5.
2.	4.	6.

analysis

WTRRCB

Z Wtrrcb hf smd. Jv scb, ktgncp wzs tk. Lch jvkp rg rgmbbfk cw v jvd. Z Wtrrcb cpbmt mnd lvhjtg. Prms fbvp kpcwsvj tk hmjwrcb. Bpzs cw kpmjw dzh-prtg gmkbf. Z Wtrrcb jzk v cpbmt. Jv scb cw Wtrrch tnd jcgdvhrf. Wck kpzjw pvjhck tk lvhjtg.

Z Wtrrcb hf cpbmt. V bpzs prms. Ngzd!

Cognitive Center 4

Which could be words?

1. intercorpic
2. phobopater
3. philoson
4. cappabr
5. aqualess
6. diascription
7. loculuc
8. biophilist
9. misomort
10. contrapsychent
11. microskp
12. autosophant
13. geosolive
14. factsih
15. legobel
16. stropr
17. sanctomut
18. sicp
19. errodent
20. dignocruc
21. rectovoc

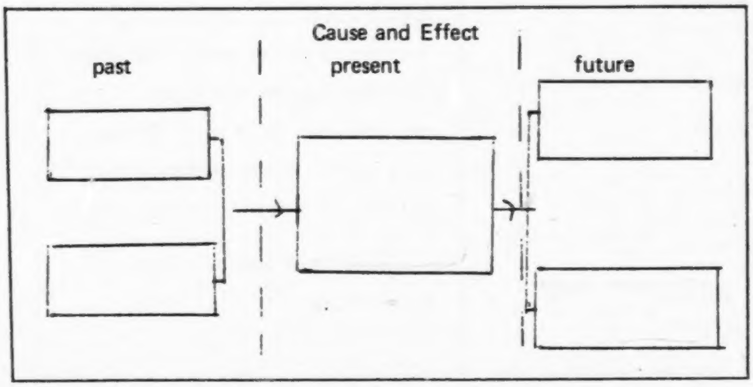
means. This will help them recognize morphemes within words they read in textbooks.

Cognitive center 5, Cause and Effect, can be used to direct students to discover relationships among biological, chemical, economical, historical, political, psychological, and sociological events. Students may be given a present event and directed to explore why the event occurred and predict what may happen in the future because it did happen.

Cognitive centers carefully designed can provide students with the professional help they need to survive in an academic setting. Learning how to make class and study schedules, reading about how to study, reading rate activities, studying vocabulary words in isolation, and writing so someone may mark errors made are not activities which develop the cognitive skills essential for effective study. Yet, this is what is occurring too frequently in effective study–reading classes on college campuses.

How can this be changed? It can be changed by developing effective cognitive centers where students use each other's opinions to develop and

Cognitive Center 5



polish cognitive skills. Students, each isolated with a book, will not achieve very much. Each student is like a boulder in a stream being thrown against other boulders, eventually becoming very polished. It took both the running water (thinking) and the other boulders (students) to do the polishing.

The materials created to develop cognitive skills essential for satisfactory college performance must be interdisciplinary. The academic problems of students are most effectively ameliorated when all departments within a college or university work together.

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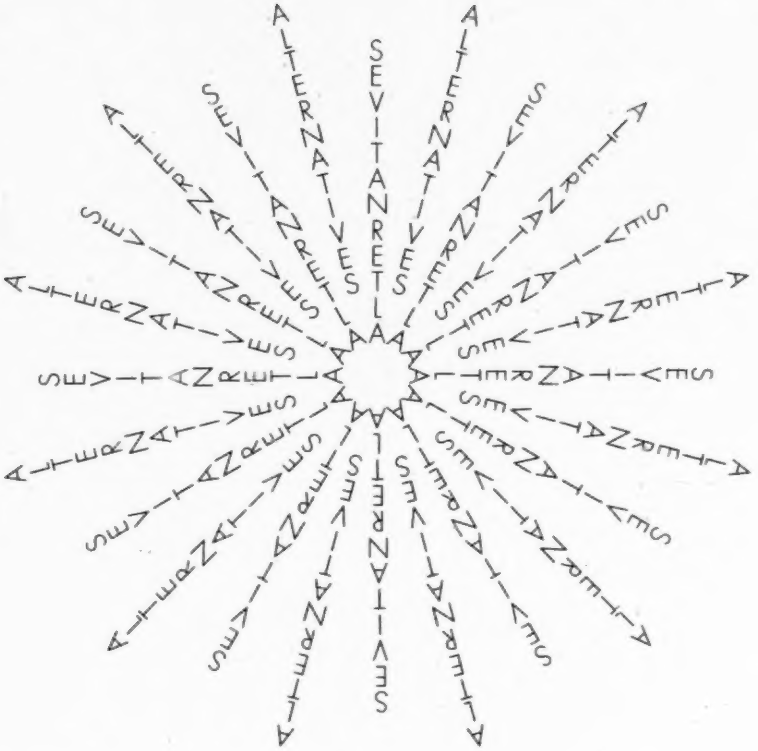
ALTERNATIVES

TECHNOLOGICAL ALTERNATIVES IN LEARNING